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CONNECTING AMERICAN MANUFACTURERS (CAM)
Virtual Manufacturing Marketplace (VMM)

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General Dynamics Information Technology

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Final Report

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Connecting American Manufacturing (CAM) is targeted at improving the sourcing capability for DoD products such as spares and needed components to respond to surge requirements.

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1.0   SUMMARY

The Connecting American Manufacturing (CAM) initiative was designed to improve the sourcing capability for Department of Defense (DoD) products such as spares and needed components to respond to daily and surge requirements. CAM was intended to develop, demonstrate and deploy an advanced sourcing tool, linking buyers with an ever increasing pool of potential suppliers in order to eliminate no-bid procurement scenarios, reduce the cost of products through competition, and accelerate lead times through pushing procurements out to potential suppliers. In addition, CAM was designed to increase the number of US companies bidding on DoD business.

The team's overall approach was based on three major factors:
1. The team selected MfrSearch as the database for daily search operations. MfrSearch was an existing database that centered on Ohio manufacturing companies. The database and its search functions were already established. The model was to expand the coverage of manufacturing companies from Ohio to all across the nation and to increase and optimize functionality to meet the goals of this initiative.
2. The team elected to use FedBizOps as the target repository of Government opportunities. Buyers are required to post their opportunities to FedBizOps. Part of the posting requirement is to designate a North American Industry Classification System (NAICS) code for each opportunity. Every manufacturing opportunity is posted to FedBizOps so visibility of all manufacturing opportunities was available.
3. The team selected a group of manufacturing NAICS codes to match potential vendors with the NAICS codes associated with each opportunity in FedBizOps.

The methodology taken by the team consisting of General Dynamics Information Technology (GDIT), TechSolve, Inc., and The Manufacturers Group was to take an existing manufacturing sourcing tool (MfrSearch), expand its functionality, and link potential vendors with the requirements posted in FedBizOps. By matching the NAICS codes listed in FedBizOps solicitations with the vendors' NAICS codes, automated emails were sent to those vendors who were qualified to do the work. This targeted push approach would save potential vendors hours of time sifting through the thousands of opportunities that are posted daily on FedBizOps. Additionally, by pushing requirements to vendors, it was anticipated that a larger list of potential vendors were included because not all would be expected to routinely search FedBizOps unless they regularly sought DoD business opportunities.

The team leveraged the current sourcing tool hosted at mfrsearch.com which already offered a basic matching framework for Ohio companies with Government opportunities. The increased functionality included:
- Adding data fields which resulted in a more robust vendor profile.
- A framework on the web site where vendors could update their profile.
- A framework on the web site where Government and commercial buyers could post their requirements.
- An increased number of vendors in the database by using search engines such as LexisNexis and Haystack.

- Development of a targeted list of NAICS codes which reflected the manufacturing NAICS codes.
- Development of programming code to match the manufacturing NAICS codes with the manufacturing NAICS codes that were posted in the requirements in FedBizOps announcements.

Throughout each day, the MfrSearch search engine combed the FedBizOps opportunities and matched the selected NAICS manufacturing codes of those opportunities with vendors' NAICS codes. After a match was recorded, MfrSearch automatically generated and sent an email notification to the vendor(s) describing the opportunity and providing details on how to bid on the opportunity. The vendor could then click on the email to notify msrsearch.com that they were interested in the opportunity or if they needed additional information. TechSolve team members were also available to help any vendor through the bidding process and provide information on doing business with the government.

The GDIT team dramatically increased the number of emails sent to potential vendors based on the matching of NAICS codes. This targeted approach should have led to an increased number of vendors bidding on Government opportunities. Unfortunately, the GDIT team did not have any reliable way to track who bid on opportunities and who won the respective contract. FedBizOps does have solicitations posted with awards, but it is up to the buyer to post award results. On larger contracts, buyers will routinely post award results. On smaller contracts, the buyers frequently don't post the awards.

The team broke down the results of the CAM initiative into favorable results and unfavorable results. Highlights are listed below.

1.1 Favorable Results
- The team developed an excellent working relationship with selected sourcing personnel at OK-ALC, Tinker AFB, OK, and DLA-Richmond Aviation, both with whom the team had prior business relationships.
  - The team communicated overall process with these selected DLA buyers.
  - They identified a limited number (8) of hard-to-find sourcing parts and the team matched potential vendors through the email push, NAICS code matching process described above.
  - This was an excellent start in working directly with selected DLA buyers to solve their hard-to-find parts requirements.

- The team developed a process to match the vendor's NAICS manufacturing codes to the NAICS manufacturing codes as presented in the requirements that were posted in FedBizOps.
  - This provided a tailored list of opportunities to vendors.
  - This tailored list was intended to increase the number of vendors bidding on Government opportunities.

- This process is self-sustaining and currently still in operation with only minimal maintenance. However, the team is no longer tracking results or adding functionality to the sourcing tool.

- The team developed a strong relationship with the Procurement Technical Assistance Center (PTAC) personnel at the state of Ohio and SW Ohio levels.
  - The team invited potential small business suppliers to joint PTAC/GDIT team forums to discuss how to do business with the federal government and to promote the CAM initiative.
  - These joint sessions provided a critical opportunity to get the word out to small businesses that may want to do business with the Government.

- The GDIT team increased the number of emails sent monthly to vendors from 1,674 to 715,216.
  - This large number of targeted emails was intended to increase the number of vendors bidding on Government opportunities.

- Using the Haystack database, the team found vendors who received awards who were in the database and received emails from us concerning specific opportunities.
  - A list of 510 companies who received awards also received emails from MfrSearch notifying them of specific opportunities. However, a direct correlation as to whether or not the awards were based on GDIT's efforts could not be made. This will be discussed further in subsequent sections of this report.

- The team expanded the MfrSearch database to add additional information to the vendor profiles to provide more specific, detailed match information of vendors and requirements.
  - This more robust vendor profile was intended to better enable buyers to search for qualified vendors.

- The team developed a web site where Government and commercial buyers could post their manufacturing requirements.
  - The buyers could post their manufacturing requirements to a targeted group of manufacturing vendors which was intended to lead qualified vendors to opportunities within their specific business capabilities.

1.2 Unfavorable Results

- The GDIT team found no reliable mechanism to tell who received an award based on the RFP info supplied by mfrsearch.com. This is not a limitation of this portal but rather a systemic issue.

- Neither the Government nor manufacturers are incentivized to report whether a specific manufacturer(s) submitted a bid on a certain RFQ or report to whom an award was made.
  - The buyers often have a lengthy queue of RFQs to satisfy and just want to get an order filled and move on to the next one.

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- o The vendors don't want their competition to find out they won because they potentially create additional competition for themselves on future bids.
- o After several attempts to access this type of proprietary information from Government and commercial databases, the GDIT team was unable to fully determine which manufacturers bid on what RFQs and whether or not they received an award.

- RFQs posted on FedBizOps lacked consistency and standardization.
  - o Potential vendors had problems obtaining required technical designs and drawings in a useable format.
  - o Some opportunities required passwords to obtain the technical drawings. Some potential vendors called DLA buyers to request the required info; others simply quit because of the additional resource commitment to do so.

- In many cases, the Government only needed items in small quantities which many vendors could not produce at a reasonable cost; often times, minimum procurement quantities far exceeded the specific need.

- A number (approximately 20) of manufacturers with whom the team spoke directly indicated they had little, if any, interest in doing business with the Government based on their perception that Government work requires more overhead and results in less return on their investment of time and resources than similar commercial work; and was, therefore, not worth the required effort.

- There was difficulty in matching requirements and potential vendor capabilities. Government buyers search for new manufacturers or suppliers by creating RFQs around specific parts and part numbers. Manufacturers, on the other hand, think about their capabilities in terms of machines, processes and materials. Without having access to technical details and design requirements, it was often difficult for potential suppliers to continue the search for hard-to-get parts.

- In most cases, the sourcing timeframes were too short. Most manufacturers, especially those who did not regularly do business with the government, needed longer times in order to determine if they were going to respond to an RFQ.

- The listing of bidders on a particular requirement was not available to the general public or through a data base search.
  - o That information is considered price sensitive and when an award is completed, the information is transferred to the Freedom of Information Act (FOIA) office and would require a specific request to access.

- Although the mfrsearch.com web site had a provision where buyers could post their requirements
  - o There were no buyers who posted requirements to the MfrSearch portal.
  - o Most buyers did not know about the portal and the features it offered.

- The buyers who did know about the portal said it was another place to go to place the solicitation and they did not have the time to so.
- To take advantage of this, Government buyers would require some level of training after information is provided about the portal itself. This was beyond the scope of this initiative but likely is a systemic limitation to achieving some of the intended goals.

- Even though DLA-Richmond had over 6,000 hard-to-source parts listed on their web site, buyers were too busy sourcing other parts that had qualified vendors to put sufficient time into hard-to-source parts.
  - Awareness of the CAM program and proven results will likely increase the usage of e-sourcing tools such as MfrSearch.

- Working with the Manufacturing Extension Partnerships (MEPs) was not as fruitful as expected because they often perceived the team was trying to take work away from them.

2.0   INTRODUCTION

The Connecting American Manufacturing (CAM) program was designed to improve the e-sourcing capability for Department of Defense (DoD) products such as spares and needed components to respond to daily and surge requirements. CAM was intended to develop, demonstrate and deploy an advanced e-sourcing solution that screened, organized, and presented Government spare parts requirements to the industrial base, thereby linking buyers with an ever increasing pool of potential suppliers in order to eliminate no-bid procurement scenarios, reduce the cost of products through competition and reduce lead times through pushing procurements out to potential suppliers.

Any deployed system was intended to be financially self-sustaining to maintain and, in the future, have a growth capability in order to encompass a broader range of industrial base sectors while sourcing supplies across the globe. The team leveraged and enhanced the functionality of an existing sourcing tool for the state of Ohio hosted at mfrsearch.com to enable nation-wide small manufacturers and suppliers to quickly identify manufacturing requirements that matched their unique competencies and provide bids with a reasonable investment of time and resources.

Section 3 of this report identifies specific team activities in meeting the objectives as outlined in the Statement of Objectives/Needs in the solicitation. The objectives centered on defining, designing, and deploying a capability which:

- Develop and pilot tools and practices which cause a greater number of US companies to bid on DoD business.

- Improve the capability of US manufacturers to participate and thrive in a digital enterprise.

- Develop advanced capabilities for identifying manufacturers ("sourcing") and matching capability and capacity to needs.

- Become self-sustaining, with potential to scale-up beyond DoD markets and significantly expand national and global access to (and demand for) US manufacturing capacity.

The GDIT approach was built upon the following major tenets:

- Don't reinvent the wheel, but improve upon it.
    - Took an existing manufacturing sourcing tool (MfrSearch).
    - Expanded its functionality.
    - Added thousands of vendors to the database.
    - Linked potential vendors with the requirements posted in FedBizOps.
- Develop a process that allowed vendors visibility of opportunities they could bid on.
    - Matched NAICS codes listed in FedBizOps solicitations with the vendors' NAICS codes.
    - Sent automated emails to those vendors who were qualified to do the work.

This targeted approach was intended to save potential vendors hours of time sifting through the thousands of opportunities that are posted daily on FedBizOps. In addition, the robust database included many vendors that did not have previous exposure to Government opportunities. This increased the number of potential bidders on Government opportunities which was one of the goals of the CAM initiative.

The foundation of the program is the MfrSearch sourcing tool. This tool is a robust, "free" online database of Ohio manufacturers and suppliers, allowing for detailed, "self-created" company profiles and the posting of RFQs. Initially, it already had many of the desired features such as email notification, capability decision engine for pairing RFQs with potentially qualified suppliers, a seller profile format, and the ability to search information on buyers and sellers. The team believed this was a low risk foundation upon which to build greater capability to match vendors with opportunities.

The increased functionality for the CAM program included:
- Adding data fields which resulted in a robust vendor profile.
- A framework on the web site where vendors could update their profile.
- A framework on the web site where Government and commercial buyers could post their requirements.
- An increased number of vendors in the database by using search engines such as LexisNexis, Thomas Register, Dun & Bradstreet, and Haystack.
- Development of a targeted list of NAICS codes which reflected the manufacturing NAICS codes.
- Development of programming code to match the manufacturing NAICS codes with the manufacturing NAICS codes that were posted in the requirements in FedBizOps announcements.

The additional functionality of MfrSearch increased the number of emails generated and sent to qualified vendors so they could accomplish their due diligence on specific requirements and bid on an opportunity if they decided to do so.

The remaining sections of this report describe the technical approaches that the GDIT Team used and results achieved.

3.0 METHODS, ASSUMPTIONS AND PROCEDURES

The GDIT team developed specific methods, processes, and procedures during the timeframe of this initiative that matched manufacturing requirements with qualified vendors. The following discussion highlights the team's efforts in supporting the four objectives outlined in the Statement of Objective/Needs.

3.1 Objective One: Develop and pilot tools and practices which cause a greater number of US companies to bid on DoD business

As stated, the approach taken by the GDIT team leveraged the current sourcing tool hosted at mfrsearch.com which already offered a basic matching framework for enabling Ohio vendors to be alerted of government buyer opportunities. This framework consisted of the capability to (1) read/review Request for Proposal (RFP)/Request for Quote (RFQ) listings posted at www.fbo.gov (FedBizOps); (2) recognize the NAICS 6-digit code assigned to the posting; (3) match postings using the NAICS code designations to sellers registered with like NAICS codes listed in their profile in mfrsearch.com; and (4) send automated email alerts for matched opportunities to the registered seller.

Since one of the goals of the CAM initiative was to increase the number of potential suppliers responding to specific RFQs, the team reviewed thousands of NAICS codes and selected those that identified manufacturing requirements. Using these specific manufacturing NAICS codes, the GDIT team used MfrSearch to sort through the many opportunities posted each day on FedBizOps. The GDIT team used the opportunities in FedBizOps versus the DLA DIBBS system since FedBizOps provided a broader range of parts requirements. The DIBBS system was limited to parts that were less than $25,000.

As stated, the NAICS code ranges selected by the GDIT team were based on manufacturing NAICS codes. These were defined as follows: 332114-332999 (excluding 332410 and 332811-332813); 333111-333999; 334111-334519; 335110-335999; 336111-336999; 339112-339911 (excl. 339116); 541330, and 541712. This range of NAICS codes was selected based on an analysis of the manufacturing opportunities as listed in FedBizOps over a 30-day period at program start-up.

MfrSearch then matched the NAICS codes of the opportunities to the NAICS codes of the specific companies in the database. This "targeted" approach provided the small manufacturer specific opportunities that were tailored to the company's business expertise and skill sets. Once a company decided that the opportunity was in its market space, they could secure the engineering drawings or spec sheets from the government procurement specialist. Or, they could contact the GDIT team to get specific links to "doing business with the government." Additionally, the GDIT team was available to assist them in securing the necessary technical information so they could prepare a bid. Additionally, TechSolve personnel provided one-on-one instructions to the vendors when requested. This was especially valuable to companies with little or no previous Government experience. TechSolve provided this tailored help to over 50 small businesses during this initiative. The GDIT team was available to help the small

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manufacturing company prepare their quote or proposal. Some vendors asked for help, but the majority of vendors proceeded on their own.

During this initiative, the GDIT team increased the number of automated emails sent to vendors from 1,674 to 715,216 monthly. These emails were based on matching the NAICS codes of the requirements to the NAICS codes of the vendors. This large number of targeted emails provided small businesses an excellent way to find out about new opportunities that fit their business, gave them a mechanism to review technical drawings and bid specs even though this was sometimes problematic as previously mentioned, and provided information so they could make an informed decision to bid or not bid on the opportunity.

3.1.1   Success Story Identification

Since mfrsearch.com is a matching notification service and bids were not submitted for government items through the site, the GDIT team conducted an experiment to see if awards could be back-matched with RFQ notice emails to identify sellers that had received awards. Potential successful identification efforts were initiated during May 2013 using information from a Haystack database list of 510 companies that had been determined by the GDIT team to have received awards. The team reviewed all awards in Haystack and narrowed the list to those awards in the manufacturing areas. To identify whether mfrsearch.com had played a role in the bid notification process, these recipients were sent an initial email asking if they had used the mfrsearch.com site to become aware of the bid opportunity for the awards received. Sellers were sent a copy of the RFQ matching email and asked whether they had used the site and their thoughts on the experience. No responses were received, and none of the sellers with contact information with whom the team was able to follow-up by phone indicated a specific connection with the site.

A second experiment was initiated by the GDIT team during May 2013 with companies that previously won awards as indicated by FedBizOps and were listed in the mfrsearch.com database. When contacted, the companies did not produce any definitive recollection of a connection between the bid/award and notifications from mfrsearch.com. Companies could not confirm that they won awards linked to RFQ alerts received from mfrsearch.com. Since there was often a large time lapse from when a company submitted a bid, when they received an award, and when the award was finally posted, the companies did not remember if they were notified by MfrSearch of the opportunity or found it via another source.

The GDIT team did not find a reliable way to determine if a company received an award based on the initial notification by MfrSearch. The team asked a number of buyers for award information, but were told it was proprietary information and not releasable. It is the team's opinion this inability to correlate awards with notification push methodology was the major shortcoming of this initiative.

3.1.2   System Processes

The GDIT team implemented a number of improvements to the existing MfrSearch portal to potentially increase the number of companies bidding on DoD business opportunities. Some of the improvements that supported enhancing the functionality and capabilities of mfrsearch.com as a tool for the CAM initiative are described below.

3.1.2.1 Database Coverage

The GDIT team increased the geographic coverage of MfrSearch from an Ohio-based database to a nation-wide database by adding company data from multiple secondary data sources such as LexisNexis, the System for Award Management (SAM), and Haystack. These database sources were selected because all three had significant desired information about prospective vendors, including vendor name, address, emails, and NAICS codes. The GDIT team then matched the manufacturing NAICS codes to manufacturing companies in these databases. The team extracted the pertinent information about these companies and added them to the vendor profile. This increased the number of vendor profiles from 46,235 to 415,260, incorporating vendors in all 50 states as seen in Figure 1 below.
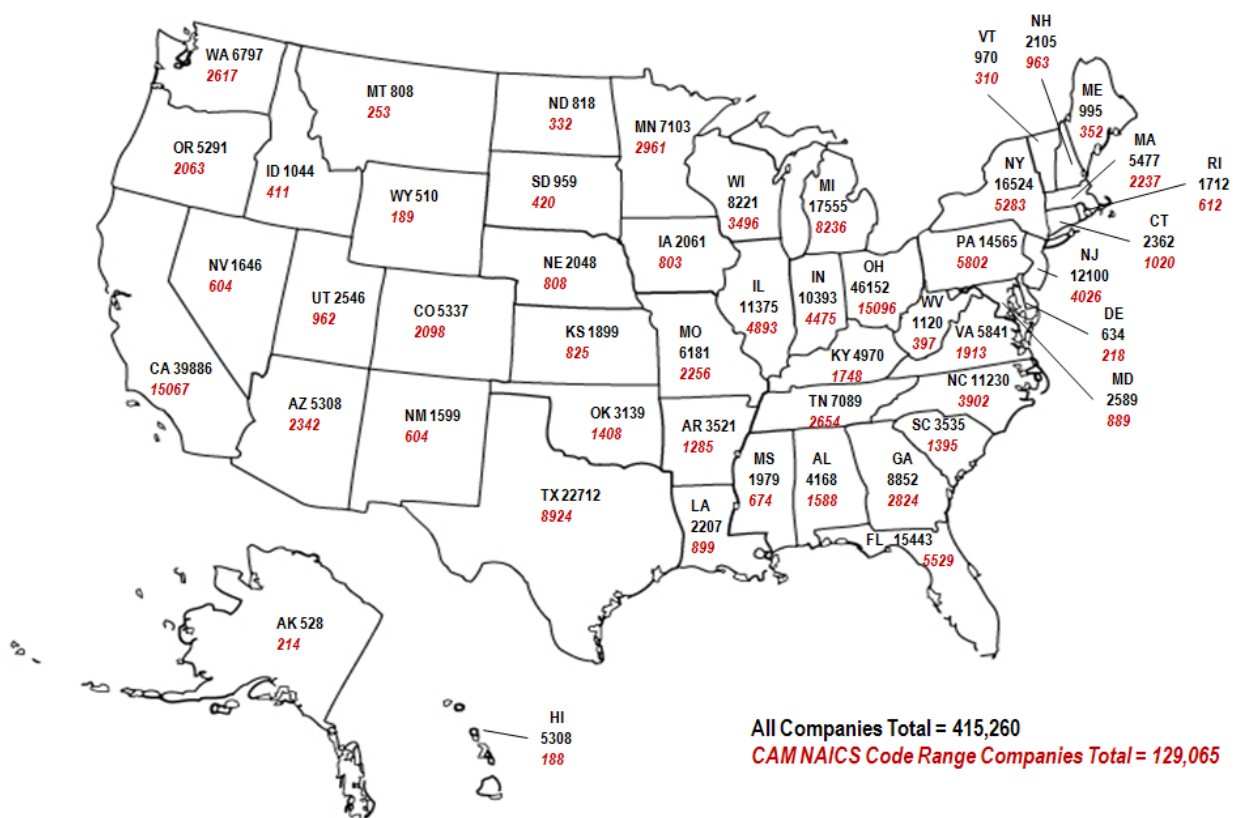

Figure 1 – Company Coverage by State

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3.1.2.2   Activity Tracking

The GDIT team devised the following method to support metrics data collection and to perform follow-up with companies receiving email alerts containing links to RFQ opportunities that matched company NAICS code profiles. The:

- Added a click button on the email that MfrSearch sent to vendors. If they clicked on it, the team assumed they were interested; if they didn't click, the team assumed that they were not interested. This was not a definitive system but did assist us in measuring vendor interest in a specific opportunity. An RFQ Click Activity Report described below showed all RFQs that were clicked on by vendors receiving the emails. This provided a mechanism where the team could follow up with the vendors via email or by phone to see if they needed help with the bid process.
- Established an RFQ Activity/Export Report that allowed the GDIT team to track all RFQs being processed through the portal and sent to vendors and allowed RFQs based on NAICS code. An excerpt from this report follows.

RFQNumber	RFQTitle	DateOfIss	QuoteDeadline	Source	ExternalURL	VisibleSta	VisibleEnd	NAICS	Active
SPE4A712T2270	15--BALANCE WEIGHT,AILE	4/1/2012	4/16/2012	FedBizOp	https://www.fbo.gov/	4/1/2012	5/16/2012	336 - Tran	Active
SPE4A612T2513	31--BEARING,ROLLER,ROD END	4/1/2012	4/16/2012	FedBizOp	https://www.fbo.gov/	4/1/2012	5/16/2012	332 - Fabr	Active
SPE4A612T2531	31--BEARING,ROLLER,TAPERED	4/1/2012	4/16/2012	FedBizOp	https://www.fbo.gov/	4/1/2012	5/16/2012	332 - Fabr	Active
SPE4A712T2265	15--BALANCE WEIGHT,AILE	4/1/2012	4/16/2012	FedBizOp	https://www.fbo.gov/	4/1/2012	5/16/2012	336 - Tran	Active
SPE4A512T2200	40--WIRE ROPE ASSEMBLY,	4/1/2012	4/16/2012	FedBizOp	https://www.fbo.gov/	4/1/2012	5/16/2012	314 - Text	Active
SPE4A612T2502	31--BEARING, BALL, ANNULAR	4/1/2012	4/16/2012	FedBizOp	https://www.fbo.gov/	4/1/2012	5/16/2012	332 - Fabr	Active
306-12-000028-OAG	Water Technical Lead	4/1/2012	4/12/2012	FedBizOp	https://www.fbo.gov/	4/1/2012	4/27/2012	541 - Prof	Active
W912NR-12-R-0004	10--Chemical Latrine Lease/Rental	4/1/2012	4/20/2012	FedBizOp	https://www.fbo.gov/	4/1/2012	6/19/2012	562 - Wast	Active
W912NR-12-R-0003	X--Portable Shower and Laundry Trailers	4/1/2012	4/20/2012	FedBizOp	https://www.fbo.gov/	4/1/2012	6/19/2012	561 - Adm	Active

- Established a Company Export Report that allowed the team to track total number of companies in mfrsearch.com and list companies based on NAICS code and location. An excerpt of this report follows.

Click Date	RFQID	Email	Name	Company Name	Phone Number	ExternalURL	FQNumbe	RFQTitle	NAICS	Interest	IP Address	Identified
6/5/2012 8:51	97714	darcyme@	Myles Dar	Air Products	6148858660	https://ww	N0018912	68--LIQUID	325120	None	204.27.156.	Yes
6/5/2012 8:52	97714	darcyme@	Myles Dar	Air Products	6148858660	https://ww	N0018912	68--LIQUID	325120	None	204.27.156.	Yes
6/5/2012 8:52	97714	darcyme@	Myles Dar	Air Products	6148858660	https://ww	N0018912	68--LIQUID	325120	None	204.27.156.	Yes
6/5/2012 8:52	97789	darcyme@	Myles Dar	Air Products	6148858660	https://ww	SB1341-12	700L to 10	325120	None	204.27.156.	Yes
6/5/2012 9:38	98761	info@plar	Garth Dex	Planet Products Corporation	5139845544	https://ww	HSCG40-1	HOUSING	333911	None	216.68.162.	Yes
6/5/2012 9:38	98756	info@plar	Garth Dex	Planet Products Corporation	5139845544	https://ww	SPE4A712	28--SUPPO	336412	None	216.68.162.	Yes
6/5/2012 10:12	97752	tpi_fl@to		Total Plastics	4408911140	https://ww	N0025312	93--PLAST	326199	None	64.20.204.1	Yes

These reports enabled the GDIT team to extract specific information for monthly reports and to determine how the team was progressing in adding new vendors to the database. Again, the overarching rationale for this was the potential to increase the number of bids on specific

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opportunities by increasing the number of vendors in the database and the number of automated email alerts based on NAICS code matching for each opportunity.

3.1.3   Database Enhancements

Since increasing the number of manufacturing vendors in the MfrSearch database and enhancing the detail and quality of the associated information about each vendor was fundamental to the approach, during this initiative, the GDIT team continuously added new vendors and enhanced profile information to the database. The following is one example where the team analyzed the Haystack database to find new manufacturing companies.

The GDIT team extracted two sets of additional data from Haystack. These records included 122,000 companies with Commercial and Government Entity (CAGE) codes and 6,900 records with named contact email addresses. CAGE codes were important because all companies need a CAGE code to do business with the Government. All of these records were compared with records already in the database and then used to update existing records and add new ones. The impact of this database enhancement activity was significant during the period January 2013 to June 2103. Some highlights included the following:

- Total RFQ matches made in the NAICS manufacturing codes increased from 22,407 in January 2013 to 3,155,993 during June 2013.

- Number of companies with one or more matches with RFQs in the NAICS manufacturing codes increased from 1,231 in January 2013 to 83,379 during June 2013.

- Number of companies with CAGE Codes, email addresses and NAICS codes in the NAICS manufacturing codes increased from 349 in January 2013 to 887 during June 2013.

- Number of emails sent to companies in the NAICS manufacturing codes increased from 9,430 during January 2013 to 715,216 during June 2013.

These results all point to a database that was well matched to the manufacturing NAICS codes, greatly increasing the number of emails sent to qualified vendors, with an intended increase in the number of bids by and awards made to small businesses who may not have known about the specific opportunity otherwise. This system provides an excellent vehicle to match opportunities with qualified vendors. The MfrSearch portal and the enhancements implemented provided a robust database that allows more companies to bid on opportunities. However, as previously stated, until there is more award data available to the general public, the team will not know how many vendors received awards based on email matching activities.

3.2   Objective Two: Improve the capability of US manufacturers to participate and thrive in a digital enterprise

For vendors to participate in the Government buying process, they needed to be aware of opportunities when they are released by the Government. By having a robust vendor database, the GDIT team enabled matching opportunities to a vendor's business area.

The GDIT team enhanced the existing mfrsearch.com vendor profile and content fields to make it easier for vendors to update their profiles and to record information that would be of potential interest to DoD buyers. This continuous refinement of profile information was targeted at narrowing the match data so that more timely identification of actual qualified bidders could be made. Some enhancements implemented by the GDIT team included the following:

- Drop down boxes with self-populating fields to the certification profile field using a back-end database of available certifications.
- A drop down box of business classifications to enhance the seller's business description. The ability to add DD2345 documentation was also included.
- A time stamp to track when profiles were created and updated. This was used to query vendors to update their information after one year.

The objective was to enhance current registered vendor profiles by increasing the number of profiles containing contact emails, CAGE codes, and NAICS codes. The triple combination of contact email address, NAICS code and CAGE code information enabled registered sellers within mfrsearch.com to be quickly notified about DoD RFQ opportunities and positioned these sellers to respond more quickly. By analyzing multiple databases of LexisNexis, SAM, and Haystack, the GDIT team increased the number of vendors with these three profile items from 77 to 857. Vendors without a CAGE code were sent instructions on how to obtain a CAGE code since vendors can't submit a bid unless they have a CAGE code.

3.2.1 Data Fields

The GDIT team selected a number of data fields that represented a robust vendor profile that could be examined by Government and commercial buyers to fulfill their specific needs and requirements. A buyer could use this vendor information to determine the number of vendors who could manufacture a specific part. Whenever the team contacted a buyer, the team informed them of the site and the value of the site to them. Although a limited number of buyers viewed the site during this initiative, spreading the word throughout DLA will drive more traffic to this site and, hopefully, buyers will connect directly with vendors concerning their hard-to-source parts.

The items listed below were added to the vendor profiles. These additional items were beneficial to the vendor in two ways:
1. The description field was used to further refine the search by matching keywords in the vendor profile to keywords in the FedBizOps opportunity.
2. Potential buyers could match their requirements with the vendor description.

3.2.1.1 Company Information:
- Company ID: Unique number for each company (assigned by system)
- Company Name: Company Name
- Company Summary: Company Summary / Description of capabilities
- Primary Phone: Company Primary Phone Number
- Primary Email: Company primary general email address
- Unique ID: Unique ID used for web (assigned by system)

- NAICS: Company NAICS codes
- CAGE: Company CAGE code
- JCP Cert: JCP certification info
- Certs: List of certifications
- Associations: List of association memberships
- URL: Company website address
- DUNS: DUNS number
- Equipment: Equipment used to accomplish manufacturing, test, inspection
- PPAP: PPAP number
- Modified Date: Last modified date

3.2.1.2 Division Information:
- Division ID: Unique number for each division
- Mailing Address: Division mailing address, city, state, ZIP
- Shipping Address: Division shipping address, city, state, ZIP
- Toll Free: Division toll free number if available
- Office Phone: Division office phone number
- Fax: Division fax number
- Longitude/Latitude: Shipping long & lat used for distance searches

3.2.1.3 Contact Information:
- Contact D: Unique number for each contact (assigned by system)
- Contact Name: Contact first, MI and last names; honorific and suffix
- Added Date: Date contact added
- Position: Contacts title / position at company
- Email Address: Contact email address
- Phone: Contact phone number

As stated before, adding the new data fields shown above to the vendor profile had a twofold benefit for prospective vendors:

1. Increased reviews if buyers should query the database to determine who manufacturers a specific part. Again, this was limited because of the lack of a widespread education process for buyers about this specific initiative and the MfrSearch portal.
2. More accurate matching of keywords in the description to keywords in the FedBizOps opportunities which lead to a better granularity in matching the items the vendor actually manufacturers.

3.2.1.4 Vendor Dashboard
One of the components of the MfrSearch website is the Vendor Dashboard. Features included the following:

- A list of all RFQs that pertain to the vendor's NAICS codes. This is an automatically generated process when MfrSearch created a match between the FedBizOps NAICS code and the vendor's NAICS code.

- Ability for vendors to place RFQs on their respective vendor dashboard for parts that are related to their main business.
- A link to the message center for communication between buyers and vendors. This message center function facilitates email correspondence between buyers and vendors. Without aforementioned buyer familiarity with this e-sourcing portal, the vendor would most likely have to initiate this communications.

Figure 2 provides an image of the vendor dashboard, a mechanism that shows all RFQs that pertains to that specific vendor.

Figure 2 - MfrSearch Vendor Dashboard

3.3 Objective Three: Develop advanced capabilities for identifying manufacturers ("sourcing") and matching capability and capacity to needs

As an existing e-business tool, MfrSearch is the basis for a vibrant system that matches requirements to qualified vendors. After initiative enhancements, MfrSearch has the following attributes:
- Ability to extract opportunities from existing government systems such as FedBizOps.
- A vendor database of profiled capabilities.

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- A single point registration; a provision that matches seller capabilities to buyer requirements.
- Automated e-mail notification of opportunities.
- Buyer's control to limit who sees the RFQ.
- Geographic sourcing.
- File upload / storage.

The latter three capabilities were not used during this initiative.

As mentioned, the GDIT team conducted market research and sourcing activities of LexisNexis, SAM, and Haystack commercial databases to identify potential new vendors and enhance vendor profiles, thereby adding to prospective vendors who could then be contacted by e-mail during the NAICS code matching process.

While NAICS code matching is a great start in facilitating vendors bidding on specific opportunities, the NAICS codes are broad classifications and, even though the vendor has a specific NAICS code match, they may not manufacture the specific required part. One advanced feature of the GDIT team system is the ability to match keywords in the FedBizOps description to keywords in the vendor profile in MfrSearch. This produced a further refinement in the matching capabilities and further qualifies the vendor that the item is in their manufacturing capability.

3.3.1 Manufacturing Extension Partnerships (MEP)

In addition to improving the MfrSearch portal, the GDIT team looked at other ways to develop capabilities to potentially identify new manufacturers who potentially were interested in doing business with the Government. Since there was an already existing infrastructure, the team decided to develop relationships with several MEPs. The MEPs were already organized throughout the US to help small manufacturers grow their businesses. The existing infrastructure included a database of small businesses and thus was a logical choice to develop. The GDIT team decided to initially contact a limited number of MEPS on a trial basis to see if it was worth committing time, money, and effort to develop relationships with them.

The GDIT team contacted 10 MEP organizations. An initial e-mail was sent out introducing them to the CAM initiative and the mfrsearch.com e-commerce portal. This initial e-mail was followed up with subsequent e-mails and phone calls to determine their level of interest in offering mfrseach.com capabilities to their constituent small and medium sized businesses. Direct contact was made with 7 of the 10 MEPs; the other 3 did not respond to repeated e-mails or phone messages.

One MEP center held internal evaluations of the proposal to work with them. Some members were in agreement, but the final decision to participate required approval by their Board and CEO. To date, this had not happened. Other MEPs were interested, but they had concerns about the inner workings of both groups, making sure all communications went through them, and making sure that their members stayed their members.

The following table summarizes the results of the effort to contact the selected MEP organizations:

State	POC	Position	Comments
California (north)	Gene Russell	Center Director	Interested, but with concerns; no agreement reached
California (south)	John Anderson	Director of Industry Consulting Business Unit	Interested, but with concerns; no agreement reached
Hawaii	Sandy Park	Economic Development Specialist	Interested, but with concerns; no agreement reached
Idaho	Steve Hatten	Executive Director	Interested, but with concerns; no agreement reached
Nebraska	Dave Wright	Director	Have a similar capability
New Mexico	Ronald Burke	Executive Director	Interested, but with concerns; no agreement reached
Oregon	Chris Scherer	Center Director	No Response
Utah	Steve Reed	Director of Operations	No Response
Washington	Linda Adams	Marketing Director	Interested, but with concerns; no agreement reached
Wyoming	Larry Stewart	Center Director	No Response

Figure 3 - MEP Efforts

The MEPs were highly skeptical about the team's potential involvement with their small business constituents. They believed the team was trying to take work away from them. Even after repeated conversations with the MEPs highlighting the team's desire to work with them, there was very little interest in developing a collaborative arrangement to help the small businesses.

The following are additional questions raised by several MEP representatives that were not resolved because the team reached no final agreement with any MEP. Resolution of these kinds of questions will likely help mitigate some of their participation concerns.

- How does this relate the National Innovation Marketplace?
- Is this stepping on the PTACs' mission?
- What level of branding can be provided?
- What is the cost after CAM?
- What metrics do you track?

3.4   Objective Four: Become self-sustaining, with potential to scale-up beyond DoD markets and significantly expand national and global access to (and demand for) US manufacturing capacity

The long-term vision for this initiative was for it to become fiscally self-sustaining. As mentioned before, the team's business model matches NAICS codes of the vendor with those listed in the FedBizOps opportunities and send emails to qualified vendors. There is a cost associated with maintaining the MfrSearch web site and updated the site for virus protection, and corrupt information that is uploaded by the vendors. In the future, there needs to be a mechanism in place that creates a fiscally self-sustaining model. The GDIT team previously examined potential business models and learned that a critical mass of users is required for financial success. The web site platform is designed to be scalable, allowing unlimited expansion as the need arises to increase the activity between buyers and vendors.

The GDIT Team analyzed three business/revenue models as shown in Appendix A:

1) Sponsors model

2) Fee-based user model

3) Advertising revenue model and various combinations

Through user research, the GDIT Team determined that the cost to sellers needs to be minimum and needs to provide value. Therefore, while there is a possibility of a "fee per success" program as part of the business model, it is not the team's most preferred model. Additional research will be needed to conduct system usage assessments to identify the most cost effective models. It is most likely that the final business model will be a combination of the basic models presented and evolve as the user base increases.

In order to scale up beyond the DoD marketplace and expand into a global market, significant marketing events need to take place to include the following:

- Publicize success to a broad audience through focused e-mails, website announcements, technical presentations and press releases

- Aggressive marketing in manufacturing trade journals

- Aggressive marketing at key manufacturing meetings

- Work with the Small Business Administration to increase suppliers

- Work with the state PTACs to increase suppliers

- Work with MEP organizations across the US to increase suppliers

- Increase MfrSearch visibility by search engines on the internet and Google ads (selectively based on dollars available).

- Develop a self-sustaining/funding options business plan

Several demonstrations scenarios were developed and executed during the implementation period of this initiative, some proscribed by the Government and others developed by the team. The scenarios were targeted at demonstrating progress in meeting the specific goals of the initiative. While not directly correlated with the specific efforts under each of the four objectives they served as an assessment of the overarching results. The results of the demonstrations follow in section four.

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4.0   RESULTS AND DISCUSSION

A general discussion of the team's overall results, both favorable and unfavorable, was presented previously in the executive summary. The following results are those specific to the activities that were conducted during the sourcing demonstration scenarios.

4.1   Demonstrations

During the project, the GDIT team conducted five sourcing demonstration scenarios. As requested, the first scenario was an illustration of "business as usual" relative to the mfrsearch.com website to define the baseline characteristics of the system and its operation with buyers and sellers. The second demonstration involved assisting in alerting potential suppliers about difficult-to-procure parts that were identified by the Defense Logistics Agency (DLA). The remaining demonstrations were not specified by the customer; the team established a relationship with a Procurement Technical Assistance Center (PTAC) as the context for Demonstration 3, and the extension of the mfrsearch.com website to provide a value-added service to Manufacturing Extension Partnership (MEP) centers as context for Demonstration 4.

4.1.1   Demonstration 1:   "Business as Usual"

The GDIT team's proposed approach and metrics for Demo 1 were reviewed with the USAF Program Manager prior to initiating the demonstration. The first demonstration scenario was characterized by the USAF customer as an illustration of "business as usual" relative to matching NAICS codes using mfrsearch.com. Request for Quote (RFQ) interest and bid experiences addressed during Demo 1 focused on the preceding few months, but outcomes also included company experiences earlier in 2012. Figure 4 provides a graphic of the work plan for conducting and capturing the outcomes of Demo 1.

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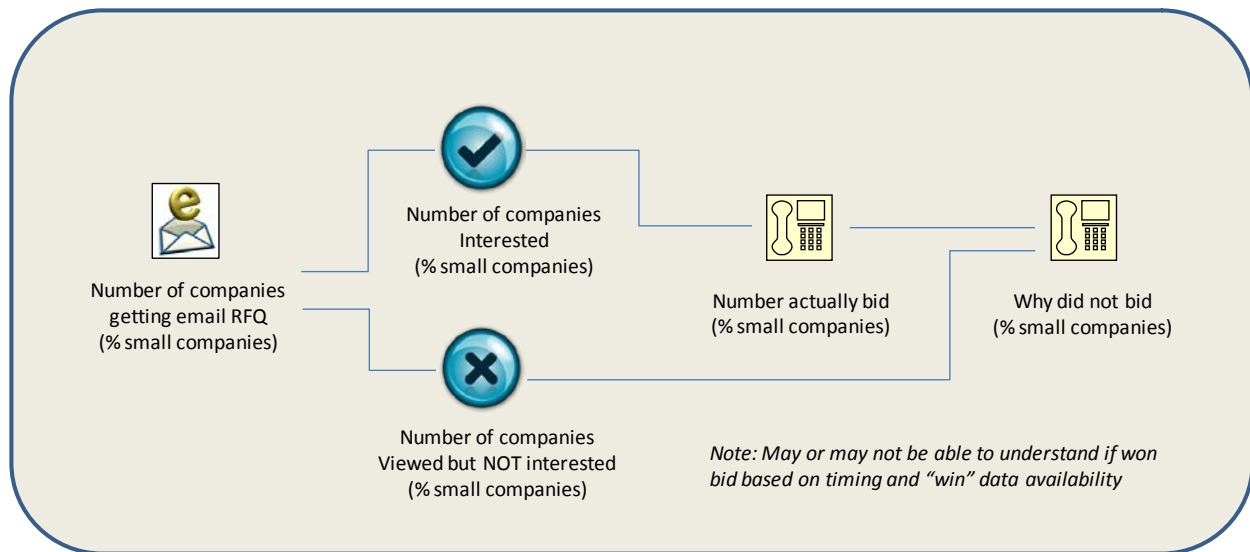
Figure 4 - Work Plan Demonstration 1 for the CAM Program

Although the team would follow-up on bids and awards as part of this demonstration hoping to document a success story, the ability to identify wins was based on size of the population, bid response date timing, and the availability of "win" notifications occurring during the demo period, which was initiated during September 2012 and completed during October 2012. An example of an email notice sent to a company with matches is provided in Figure 5. In this email, this vendor received two solicitations that matched their NAICS code, one for a Parts Kit, Actuator; and one for a Fairing, Aircraft. If the vendor was interested, they could click on the "Click Here to View Details." This would provide additional information such as the technical description or it would direct them to a site where they could look up additional information.

Figure 5 - Example Email Notification for RFQ Matches

4.1.1.1 Identification of the Population

The GDIT team began by identifying the companies that had received RFQ email matches from mfrsearch.com since the start of the project and had viewed RFQs. After analyzing 3,414 RFQ viewings that had been recorded during this time-frame, the team was able to filter the population to 200 unique companies that had viewed RFQs to contact for additional follow-up. Since bid transactions associated with the FBO RFQs are not completed using the mfrsearch.com site, potential participants were required to submit bids directly based on the specific instructions of the RFQ. As a result of direct bid submission, mfrsearch.com did not have an automated tracking method to tally site participants who submitted a bid in response to an RFQ. The team used a telephone call for follow-up but with very limited success.

4.1.1.2 Interest/Not-Interested

After identifying the 200 companies that had reviewed the RFQs sent to them by mfrsearch.com, the team categorized them based on "expressed interest" and "viewed but did not express interest". This categorization was completed based on whether the participant clicked on the "interested button" that appeared on the screen during RFQ viewing. This button was added to the site specifically for CAM as an experiment to get some indication as to bid intention. After some additional feedback from respondents, the team reconsidered the wording and use of this button. During follow-up calls, respondents that indicated having some interest in an RFQ admitted they did not use the "interested" button. The team concluded that the button may not accurately capture the interest of the responding community in a way that was useful, especially since some respondents hesitated to reveal interest given the competitive nature of the bid process. Of the 200 company population, only 5 companies actually used the interested button.

4.1.1.3 Bids Placed

During the follow-up phone calls, the team did identify a company that had placed more than one bid as a direct result of receiving and acting on the RFQ email match alert from mfrsearch.com. The team captured information about this company's experience and drafted a case study about the company and their bid and award experiences. The mfrsearch.com RFQ & News email shown in Figure 6 below is the actual email generated by MfrSearch and sent to Cincinnati Inc.

CINCINNATI®
CINCINNATI INCORPORATED

METAL SHEAR – ARMY
W52P1J-12-R-3039
The mfrsearch e-mail notified Cincinnati Inc. to the fact that the Army RFQ had finally been issued. Cincinnati Inc. received the order in September for a 500HS10 shear for $141,550.

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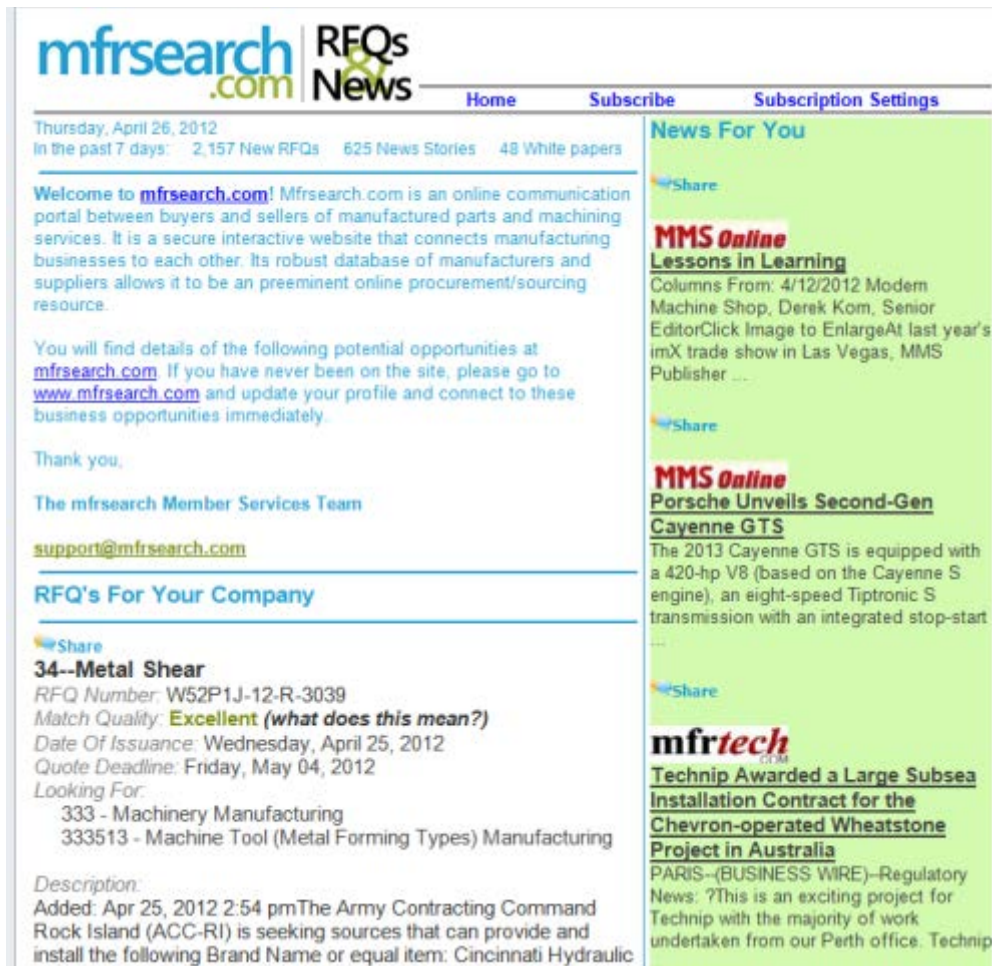
Figure 6 – Email Example Generated by MfrSearch

4.1.1.4 Why Did Companies No Bid?

During calls to the 200 companies, the team gathered data on why companies chose not to bid. While the team did not reach all of the company contacts personally, the team did gather valuable feedback. Common themes from respondents were as follows:

1. *I forwarded it on to someone else in the company and did not follow-up on it myself.* This reflects that companies sometimes use a gate-keeping process where these opportunities will be filtered and referred to others in their organizations that may have interest.
2. *I was just looking at a few…not interested in bidding on any just yet.* This reflects a community of browsers that may be candidates to respond to future opportunities with the right guidance, encouragement and support which was beyond the project scope.
3. *We have not bid as we are unable to obtain print package or detailed information on how to bid.* This reflects a part of the community new to the process that put a toe in the water but experienced some hurdles in securing the needed information or the access to necessary expertise to assist in navigating the bid process successfully in the timeframe for responding. Again, another community of potential candidates for future bids.

4. *We have decided not to go after DoD work.* Unfortunately, this community experienced sufficient hurdles in the bid process to create an unwillingness to try again.
5. *Some of the RFQs are just not a good fit for us.* This community reflects two aspects. First, even at 6-digits, matching capability by NAICS code can result in some false drops. Second, short response time windows and not being an already qualified source can limit the ability of a company to submit a bid with a reasonable chance of success.

Figure 7 summarizes the outcome metrics for CAM Demonstration 1. The team distributed RFQs from FedBizOps based on company profiles through mfrsearch.com. The site emails were received and reviewed, and in some cases, routed and forwarded. The team recognized a need to refine/improve the matching criteria in order to maximize the accuracy of the match rating system to get the best RFQs to the companies who will be most interested to bid. Based on the experiment in Demo 1, the team reconsidered use of the interested button in favor of identifying a better method to track and support company interest in an RFQ opportunity. Because of time constraints, the team was not able to implement an alternate approach in determining vendor RFQ interest.

Demo 1 Tracking

Number of companies getting email RFQ (% small companies)
200 Companies
99% Small Companies

Companies Interested (% small companies)
5 Companies
100% Small

Companies Viewed but NOT interested (% small companies)
195 Companies
100% Small

Number actually bid (% small companies)
1
100% Small

Why did not bid (% small companies)
- **"Just looking"**
- **"Forwarded on"**
- **"Not a perfect fit"**
- **"Too hard to bid"**
- **"No longer go after DOD work"**

Figure 7 - Summary of CAM Demonstration 1 Outcome

4.1.2 Demonstration 2: Difficult-to-Procure Parts

During October 2012, the GDIT team received a separate request to assist in identifying potential responders for a DLA difficult-to-source item. The team initiated direct interactions with DLA contacts provided to assist in securing the technical documents (the relevant specification and a referenced drawing) to facilitate identifying potential capable sources.

Using the resources of mfrsearch.com, the team researched and contacted potential suppliers for "difficult-to-procure" item NSN 1560015961092, an airframe structural component. Two Ohio companies were contacted with matching NAICS code 336413. After reviewing the documentation, one company determined its capabilities were not quite right for this opportunity, but the second company continued reviewing the technical documents package (TDP) in engineering to see if they could supply the part.

The GDIT team found the DLA contacts (both Buyer and Project Specialist) to be helpful in answering questions and supplying additional information in regards to the TDP. Contact was followed in writing and responded to in writing to insure clarity in communication. The potential supplier also initiated direct contact. A timeline and log was created to help document the experiences with NSN 1560015961092 for demonstration purposes. Table 1 provides this log. By late January 2013, the company decided to submit a bid. Although they had a CAGE code, this was their first government bid submission experience.

Table 1 - Demonstration 2: Log for NSN 1560015961092 (RFQ SPE4A7-12-T-2797)

Date of Activity	Task	Observations
12 -11- 2012	DLA request forwarded to GDIT for "hard to procure part" NSN 1560015961092, RFQ SPE4A7-12-T-2797. Original request came from Mr. Joie Coppedge, DLA Aviation-VEC Chief, Industrial Preparedness Branch.	No NAICS code/capability attached to original request: TechSolve determined NAICS code through internet via part number and solicitation search.
12-11- 2012	Team determined applicable NAICS code for part (a structural panel) was 336412.	The team identified two companies matching NAICS code and with CAGE codes with help of mfrsearch.com.
12-12-2012	Team sent RFQ to one company (one company opted out of the process for lack of expertise in structural composite panels).	
12-13-2012	Team obtained TDP for the NSN through DIBBS download.	Original request did not come with TDP. The company had not participated in government procurement and did not have a DIBBS password. Team downloaded to expedite the process.
12-14-2012	Team shared TDP with the interested	

Date of Activity	Task	Observations
	company using secure site "You Send It".	
12-20-2012	First correspondence to DLA CIV Aviation buyer for this part. The company requested exact quantity, part number and general summary/description of RFQ. Buyer responded the same day and copied DLA's part engineer as well as its supplier planner to answer the company's questions.	Original TDP included drawings for 6 parts. The company was confused as to which part of the 6 was required. DLA needed to provide clarification.
12-20-2012 to 1-11-2013	Company continued to review the TDPs. There was some difficulty opening one of the files. One of the files was a C4 format requiring JEDMICS access that a company engineer was unable to open. His Manager of Component Sales did a work around and was able to open it using an old file reader.	Although this company worked around the JEDMICS access issue, this likely would be an issue for any first time government suppliers. Outlining the process of accessing the JEDMICS site would be useful for DLA/DIBBS.
1-11-2013 to 1-15-2013	Company continued to review the TDP and requested assistance on 1-15-2013 from DLA buyer for the required "core thickness" dimension of the part. Buyer responded with the answer on the same day.	The company could not find the requested information on the drawing and suspected the thickness was based on the core spec and requested confirmation.
1-15-2013 to 1-21-2013	The company secured enough information to make decision to bid for the part and alerted the team of its decision on 1-21-2013. This was their first government procurement. The team identified where resources might be found to provide experienced bid submission assistance.	The team offered to put the company in contact with the Program Director for the SW Ohio Procurement Technical Assistance Center (PTAC) as a resource to help with the bid process. The company indicated they would make this contact if needed.

The company's decision-making process to bid on NSN 1560015961092 was prolonged by the following factors:

- The company also served the commercial aviation sector and commercial business demand for their capacity was high. The company had to balance the evaluation and scope of this part with its current commercial opportunities.

- The information included in and the organization of the TDP for NSN 1560015961092 led to many follow-up questions to the DLA buyer. Overall, the TDP had information that didn't necessarily relate to the specific part and was challenging to read and interpret correctly. The TDP included information for 6 parts, and the specific information for the one NSN of interest was not always clear.

- Additionally, multiple file readers were required to download and open drawing files. Many drawings were opened with C4 viewers that are accessed by the Joint Engineering Data Management Information and Control System (JEDMICS). The JEDMICS has limited or no access for potential suppliers who do not have requisite read format.

An additional issue for pricing the bid was a minimum quantity purchase requirement of 32 sheets (6ft x 8ft) when all that was needed to fill the order was less than one sheet. During subsequent follow-up, the DLA buyer indicated that this procurement was cancelled.

Despite the challenges associated with this experience, the prospective company contacted the DLA buyer to request document access for two additional government RFQs (SPE4A5-13-T-C591 and SPE4A7-13-T-4082). Unfortunately, similar issues on these items ultimately resulted in cancellation of the procurements by DLA.

4.1.3   Demonstration 3: Procurement Technical Assistance Center (PTAC) Interaction
The team continued to pursue avenues to strengthen services to companies in an effort to increase the number and quality of company responding to RFQ opportunities. Building on the experience during Demonstration 2, the team initiated a third sourcing demonstration related to strengthening the services to support companies in submitting bids for hard-to-procure items. Demonstration 3 involved developing and testing a model for teaming with PTAC personnel to leverage their talents and expertise in bid submission and their information/resources to reach additional potentially capable companies.

To initiate this activity, the team hosted a PTAC event in February, 2013 in Cincinnati that was attended by 18 local area companies. The program was entitled, "So you really want to do business with the Government?" The featured presenter was the Director of SW Ohio PTAC. Content focused on the pre-work and process for submitting bids to the Government in terms that would relate to both manufacturing and service companies. Companies were invited to "hard-to-procure" item seminars to highlight opportunities, such as the RFQ opportunities sent to us by DLA. The goal with the PTAC relationship was to leverage mutual strengths and objectives to better serve manufacturers - their bid submission expertise and GDIT's bid matching and company profiles on mfrsearch.com.

The PTAC Director worked with the team to help find and educate companies to prepare them to do business with the Government. To support this relationship, the team obtained a reader for C4 files to enable easier access and viewing of drawing files to facilitate finding appropriate companies to bid on the parts. Three additional manufacturers, all new to mfrsearch.com, met with PTAC and the team representatives in a working session in Cincinnati during April 2013 to:
- Assess whether to pursue as a prime or subcontractor or make a no bid decision on selected DLA RFQs
- Obtain a qualification matrix template to assess potential supplier performance and customer relationship
- Obtain information necessary to respond to a sourcing request

During early May 2013 before closure of this demo, the team experienced a setback related to developing a model for teaming with PTAC personnel when GDIT's contact for this effort, the Director of SW Ohio PTAC, left the organization and activity stopped. Despite this setback, the

team felt that this model is potentially a viable method for leveraging mutual strengths and objectives to serve manufacturers - PTAC bid submission expertise with the bid matching and company profile resources on mfrsearch.com. Table 2 provides the log of experiences and observations associated with Demonstration 3.

Table 2 - Demonstration 3: PTAC Teaming on "Hard-to-Procure" Items

Part #	Date received	Steps taken to acquire suppliers	Update 6/30/2013
NSN 2935012223160, PR 48524483	3/1/2013	• Downloaded RFQ for part from DLA. It was not attached to notification correspondence • No technical data was available with the RFQ. Requested technical data from DLA buyer • Unable to forward to any organization without technical data	• PTAC had no available suppliers that were willing to bid • Though personal meetings, TechSolve restarted process with 3 new suppliers in Dayton area • Vendors elected not to pursue the opportunity since technical data was not readily available
NSN 2995010061700	1/8/2013	• Requested TDPs and drawings from buyer • RFQs associated with NSN were SPM4A713T244 and SPE4A713T3470 • Contacted 3 companies which had the 336412 NAICS code; 2 opted out; waiting on one for review of initial TDP drawings • Followed up with previous supplier • Listed on Illinois MEP "Buy America" site • Given to Director of SW Ohio PTAC for supplier search • Downloaded C4 viewer; printed files and sent to PTAC	• PTAC had no available suppliers that were willing to bid • Forwarded opportunity to Colorado MEP • Though personal meetings, TechSolve restarted process with 3 new suppliers in Dayton area • Vendors elected not to pursue the opportunity due to time constraints with other work
NSN 1560016017680	1/7/2013	• Downloaded RFQ for part from DLA (had to search for NSN to get RFQ) • RFQ# SPE4A712Q4648 • Requested TDPs and drawings from DLA buyer • Contacted 9 potential suppliers with 336414 NAICS code; 2 had gone out of business and 7 have not yet engaged • Listed on Illinois MEP "Buy America" site • Given to Director of SW Ohio PTAC	• PTAC had no available suppliers that were willing to bid • Forwarded opportunity to Colorado MEP • Though personal meetings, TechSolve restarted process with 3 new suppliers in Dayton area • Vendors elected not to

		for supplier search • Downloaded C4 viewer; printed files and sent to PTAC	pursue the opportunity due to confusing drawings and uncertainty in technical content
NSN 1560016017682	1/7/2013	• Downloaded RFQ for part from DLA (had to search for NSN to get RFQ) • RFQ# SPE4A712Q4779 • Requested TDPs and drawings from DLA buyer • Contacted 9 potential suppliers with 336414 NAICS code; 2 had gone out of business and 7 have not yet engaged • Listed on Illinois MEP "Buy America" site • Given to Director of SW Ohio PTAC for supplier search • Downloaded C4 viewer; printed files and sent files to PTAC	• PTAC had no available suppliers that were willing to bid • Forwarded opportunity to Colorado MEP • Though personal meetings, TechSolve restarted process with 3 new suppliers in Dayton area • Vendors elected not to pursue the opportunity due to time constraints
NSN 6685-00-803-7705	4/8/2013	• Determined characteristics of NSN part to email information to appropriate suppliers • Found solicitation number associated with this NSN; solicitation number is SPE4A613TCD09 • Alerted 3 companies with contact information and matching NAICS code	• Vendors elected not to pursue the opportunity; one vendor said it was outside his scope and two vendors said they didn't have the time to prepare a bid

4.1.4 Demonstration 4: MEP Center Value-Added Service Offering

Demonstration 4 focused on maturing an approach for engaging Manufacturing Extension Partnership (MEP) center interest in mfrsearch.com as a business opportunity for their company constituents. The focus here was again to leverage resources and to bring new business opportunities to companies served by a MEP through the bid matching service. TechSolve contacted an initial group of MEP centers with whom they had prior associations during January and February 2013 to inform them about the CAM initiative and the opportunity to utilize mfrsearch.com as an affordable resource for locating companies (as buyer or seller) and to secure new business opportunities. The Colorado Association for Manufacturing and Technology (CAMT) MEP center was the first to express interest in a "pilot project" of this nature. This pilot provided a model for extending the use of mfrsearch.com as a portal for additional interested centers.

The team held a series of conference calls with the CAMT MEP to discuss the best ways to approach and define this relationship, including identifying the basic elements for an implementation plan. Following these discussions, the team included a mock-up of the mfrsearch.com site landing page along with research into customizing certain existing system modules to support interests of the MEP center. Tailoring elements discussed included: (1) highlighting business opportunities in the region of the MEP center; (2) a customized landing

page branded for the MEP; (3) ordering the display of opportunities to highlight regional opportunities first; (4) adding a "needs" field into the company profile; and (5) a regional industry news feed. A mock-up of what these tailoring elements might look like for the pilot center is included in Figure 8.

Figure 8 - Customized mfrsearch.com Landing Page for MEP Pilot Center

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During June 2013, the pilot MEP center began internal evaluations of the opportunity to participate, which included preparation of a proposal for approval by their Board of Directors and CEO. Once this approval was given, implementation could begin. The technical period of performance ended before any further activities could be completed with this MEP.

Leveraging the lessons from the pilot center, additional centers were contacted to introduce the opportunity. A total of 20 additional centers were contacted during May and June and 4 expressed interest. Follow-up discussions with interested centers were initiated during June to provide an orientation and to clarify how the mfrsearch.com site operates, site participants, buyer and seller features, website traffic, types of RFQs and matching criteria, past experience working with a PTAC, and site enhancements. Again, the period of performance ended before these activities could be completed.

One of these additional prospective MEP centers, Impact Washington serving Washington state's 7,000 manufacturers, recently launched a program to encourage and support companies that manufacture locally. The initiative, called "Made in Washington," currently promotes companies manufacturing a substantial portion of their products in the state. Impact Washington also creates a directory of manufacturers. The program provides social media forums for manufacturers to connect with one another and discuss industry issues.

Impact Washington expressed interest in mfrsearch.com as a vehicle for access to DoD and other government business opportunities for Washington manufacturers. State manufacturers enroll to get a company profile page where they can identify their contacts and other information about products and capabilities. To maintain program identity, rather than have a landing page similar to that shown in Figure 5, Impact Washington wanted to engineer an interface to mfrsearch.com within the existing framework of their website. Matching services to RFQs would occur as they currently do, but from a back-end technology connection. This "handshake" capability, once implemented, also would be available for use by MEP centers in 6 other western states who have adopted the same internet platform.

The MEP centers certainly have the potential to add value in assisting small businesses with Government procurements and assisting in the targeted goals of this kind of initiative. As previously stated, considerable skepticism on the part of the MEPs will have to be overcome to make this a potential win-win for both.

4.1.5   Demonstration 5: Additional Difficult-to-Procure Parts

During July 2013, the GDIT team received an additional request for support to assist in identifying potential responders for four DLA difficult-to-procure NSN items. The team initiated direct interactions with the DLA contacts provided to assist in securing the technical documents (the relevant specification and a referenced drawing) to facilitate identifying potential capable sources.

Using the matching resources of mfrsearch.com, within 10 days, the team researched and contacted 11 interested companies for "difficult-to-procure" items NSN 1010003810376, NSN 1095011469280, NSN 1005002755551, and NSN 1095015195114. All companies had capabilities consistent with the matching NAICS codes for these items. Follow-up requests were

made for the TDP to the same DLA Land & Maritime contact who was previously helpful in answering questions and supplying additional information in regards to a previous TDP. As in previous scenarios, contact was followed up and responded to in writing to insure clarity in communications. Unfortunately, the primary contact was out of the office for an extended period and after two weeks, the team received notification that basically cancelled all four requirements. In this response by a DLA buyer, the following specific status was provided for each NSN:

- NSN 1010003810376 (NAICS 332995): No demand for item at this time.
- NSN 1095011469280 (NAICS 332995): Tech data package outdated as of 8/7/2013. The engineers are working the item. I cannot provide information on this item until the package is updated.
- NSN 1005002755551 (NAICS 332994): No demand for item at this time.
- NSN 1095015195114 (NAICS 332995): Sent in error. This is a critical safety item and already has an approved source.

While none of these initially identified requirements for hard-to-source resulted in actual RFQs, a process similar to that in Demo 2 was followed to potentially source these items.

4.2   Metrics Reporting

During the project kickoff meeting, the team developed the following Key Performance Parameters (KPP) to keep focused and to stay "on track":

KPP 1: Number of companies expressing interest (cumulative) per month – measured by the system as number of unique respondents clicking on an RFQ in the CAM range per month. CAM range is identified below as the specific manufacturing NAICS codes that were targeted during this effort.

KPP 2: Number of "interested" per RFQ per month – measured in the system by average RFQ clicks in the CAM range per respondent per month

KPP 3: Number of matches per RFQ in the CAM range per month – measured in the system by the following:
  o Number of matched unique RFQs in CAM range/month
  o Total RFQ matches made in the CAM range/month
  o Number of matched unique RFQs in CAM range by issuing agency/month
  o Number of companies with one or more matches with RFQs in the CAM range/month
  o Total number of emails sent to companies in CAM range

As previously discussed, the manufacturing NAICS code ranges selected by GDIT as primary to monitor for CAM were defined as follows: 332114-332999 (excl. 332410 and 332811-332813); 333111-333999; 334111-334519; 335110-335999; 336111-336999; 339112-339911 (excl. 339116); 541330, and 541712.

Additionally, coverage was tracked in terms of the number of companies in the database which increased month to month. In the first month of operation, the team recorded values for KPP1, KPP2, and the number of companies in the database; that became the baseline. The team then

developed a program to automatically accumulate, compile and report the balance of the metrics monthly. Table 3 includes the metrics as reported by month during the technical period of performance.

Table 3 - Usage Metrics for mfrsearch.com KPPs (as of June 30, 2013)

Measure	Base	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13
1. KPP's:	Base														
KPP 1: Number of unique respondents expressing interest (clicking on RFQ in CAM Range) per month	39	75	86	97	179	275	353	243	52[†]	301	278	318	356	333	303
KPP 2: Average RFQ clicks (in CAM Range) per respondent per month	1.07	1.16	1.08	1.10	1.11	1.09	1.21	2.23	1.01	1.11	1.13	1.1	1.28	1.15	1.23
KPP 3: Matches for RFQs in CAM Range:															
Number of matched unique RFQs in CAM Range/month		913	1005	1072	993	1424	1597	2195	2401	2276	4003	2965	3680	5018	7416
Total RFQ matches made in the CAM Range/month		9322	23480	28393	19373	21046	19828	25437	22102	22407	52270	61874	30533	63040	3,155,993
Number of matched unique RFQs in CAM Range by issuing Agency/month		Air Force 70 USCG 41 DLA 250 Marines 13 Navy 299 Other 440	Air Force 95 USCG 20 DLA 300 Marines 27 Navy 129 Other 434	Air Force 93 USCG 24 DLA 288 Marines 13 Navy 175 Other 479	Air Force 84 USCG 15 DLA 258 Marines 21 Navy 116 Other 499	Air Force 83 USCG 8 DLA 593 Marines 22 Navy 119 Other 599	Air Force 105 USCG 26 DLA 773 Marines 18 Navy 143 Other 532	Air Force 139 USCG 66 DLA 1145 Marines 44 Navy 170 Other 631	Air Force 180 USCG 75 DLA 1135 Marines 36 Navy 247 Other 728	Air Force 231 USCG 45 DLA 992 Marines 25 Navy 250 Other 733	Air Force 321 USCG 163 DLA 2358 Marines 162 Navy 374 Other 1525	Air Force 228 USCG 52 DLA 1274 Marines 43 Navy 255 Other 1113	Air Force 238 USCG 64 DLA 1508 Marines 64 Navy 292 Other 1514	Air Force 292 USCG 78 DLA 1975 Marines 81 Navy 402 Other 2190	Air Force 342 USCG 204 DLA 2424 Marines 102 Navy 534 Other 3810
Number of companies with one or more matches with RFQs in the CAM Range/month		1298	1265	1266	1266	1276	1035	1257	1234	1231	2256	1756	27315	34354	83379
*Total number of emails sent to companies in CAM range**		1674	4591	5405	3679	4737	8849	11643	9324	9430	12024	11064	76223	111,540	715,216
2. Database Coverage:															
Total number of companies in the database/month	46,235	46,235	339,940	339,947	339,957	339,963	339,998	340,070	340,174	340,085	348,370	348,432	348,449	349,354	415,260
Number of companies with CAGE codes, email addresses, and CAM range NAICS code		77	77	77	77	77	78	96	99	349	441	446	446	848	857
Total Number of Companies with CAGE codes/CAGE Codes in CAM range										8206/847	8505/853	8511/857	8511/857	9002/1393	9010/1399

†System geolocator dropped identifiers during part of the the month of December. Only 52 could be verified. Trend would conservatively estimate this to have been on the order of 238.

*There are 58,717 distinct email addresses in system attached to companies in CAM range, as of 30 June 2013.

NOTE: GDIT specified the following NAICS Code Range as a filter for *mfrsearch.com* usage metrics - 332114-332999 (excl. 332410 and 332811-332813); 333111-333999; 334111-334519; 335110-335999; 336111-336999; 339112-339911 (excl.339116); 541330 and 541712.

5.0   CONCLUSIONS

The GDIT Team undertook the CAM initiative to increase the number of bidders on government opportunities by selecting and enhancing an existing e-sourcing portal, MfrSearch to push manufacturing opportunities to qualified vendors that the team identified by matching their NAICS code with the NAICS code posted with opportunities on FedBizOps.

The GDIT team created metrics to measure progress throughout the initiative. The metrics have increased dramatically over the last few months as seen by the following summary:

- Matches for RFQs in the CAM range
  - Number of companies with one or more matches to RFQs in the CAM range per month increased from 34,354 during May 2013 to **83,379** during June 2013.
  - Number of emails sent to companies in the CAM range per month increased from 111,540 during May 2013 to **715,216** during June 2013.

Despite this strong performance in matching and alerting sellers relative to opportunities, the team was unable to confirm bid success stories directly resulting from these alerts as previously discussed.

Listed below are the team's conclusions for this initiative:

- The defense procurement process is complex. Larger companies are skilled at moving through the system while smaller companies often struggle with the process and are often not motivated to complete it.

- Even though the team was able to identify right-match RFQs with small and mid-sized manufacturers, they often remained unwilling to bid. While they agreed the work was within the "sweet spot" of their capabilities, several noted the difficulty of the long time for registration in the SAM system and the low rate of revenue return (especially for those RFQs that listed expected part costs). Additionally, the Government will need to continue to figure out ways to compete with their existing and perceived higher value commercial project work.

- The format, requirements and information available is very inconsistent from RFQ to RFQ and difficult for small companies to navigate. Standardization of the DoD RFQ postings across DoD buyer organizations would better enable companies to quickly assess their ability to compete/interest to bid and potentially eliminate some of the barriers to their participation and willingness to do business with the Government.

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- NAICS codes are difficult to use as a single, accurate filter for RFQ matching. NAICS codes often represented broad categories that are not specific enough and allowed for a wide range of parts requirements to be included within a category. This "wide" versus "narrow" categorization made it difficult to match seller capabilities accurately and completely.

- Currently, sellers must navigate separate processes and systems to register and do business with DoD; i.e., obtain a CAGE code, update NAICS code, complete a company profile, register to get an RFQ, determine what seller won an opportunity.   Recommend these be one system for the seller to navigate.

- PTACs and MEPs can play an important role in expanding reach to increase bids for DoD work. The brief partnership with them provided strong indications that teaming MEP and PTAC organizations would be viable, but needs higher level support by both entities to mature the operational model and implement nationwide.

- Unless provided by actual bidding suppliers, there isn't a readily known data base to extract "who bid" information.   However, most companies are very tight-lipped to whom they disclose this information prior to award.

- While the team has not previously discussed this in this report because the team did not determine an adequate way to measure, other potential pitfalls with an email push approach include: 1) vendor email filters could identify the e-mail as spam precluding its receipt by the intended contact; 2) the recipient deletes the notification because the company is not interested in pursuing DOD work; or 3) the email is blocked because the company doesn't want "unnecessary" e-mails potentially diverting precious resources. Unfortunately, these are common pitfalls of email pushing.

Based on the team's involvement and direct contact with many small businesses, the team found that most small businesses wanting to do business with the government were already doing so. New companies potentially willing to expand and do business with DOD were often frustrated based on the following:

- Unable to get access into the system (SAM, DIBBS, FedBizOps, etc.)
- No success after quoting several opportunities; no feedback mechanism as to why they did not receive award(s)
- Don't have quality and finance systems in place to meet government requirements
- Don't have the time or manpower to understand a much more complex process than they experienced in the commercial environment
- Requirement volumes are not attractive
- No quantifiable return on investment (i.e., tooling costs vs. projected sales)

- Already have acceptable commercial customers and market and don't want to expand their business

The biggest challenges the GDIT team found during this initiative were:

- Creating an accurate data base of interested small businesses wanting to do DoD work,
- Providing timely notification of bid opportunities to the most qualified set of vendors in a manageable way,
- Acquiring direct feedback about "did you quote or not" from the businesses, and
- Developing a systematic method to easily obtain award information and its correlation to the e-sourcing portal, push notification process, and NAICS code matching or to any system designed for such purpose.

As the preceding results indicated, these challenges were met with varying degrees of success. Significant progress was made in expanding the potential market for Government RFQs to many more small businesses; at least from an awareness perspective. It then became increasingly difficult to determine what a prospective vendor did with RFQ information that was pushed to them, especially with respect to whether or not an increased number of companies bid on opportunities or received rewards as a direct result to the team's implementation and process. It is the team's belief that this latter limitation and insight severely hampered, and continues to, markedly improving the Government's overarching objective to increase competition and thus obtain more timely and cost effective solutions through the added competition.

6.0   APPENDIX A – Marketing and Business Plan

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CONNECTING AMERICAN MANUFACTURING (CAM) BUSINESS PLAN
Virtual Manufacturing Marketplace (VMM)

1.0   Introduction

The Connecting American Manufacturing (CAM) program's intent is to better connect Department of Defense (DoD) manufacturing needs with U.S. manufacturer capabilities. In order to address current issues associated with acquiring critical spare parts for military systems and improve participation of small manufactures in building components for the military, the DoD explored "e-sourcing" solutions that screen, organize and present Government spare part requirements to the industrial base thus improving the ability to pair the right suppliers with the right parts at the right time. General Dynamics Information Technology (GDIT), a recognized leader in providing Information Technology (IT) solutions throughout the Federal Government, selected two partners, TechSolve Inc. and the Manufacturers Group (hereinafter referred to as "the GDIT Team"), to leverage the unique capabilities of an established manufacturing sourcing tool, "mfrSearch.com". The GDIT Team built on the foundation of this effort to create a national "e-sourcing" capability with greater power, flexibility and responsiveness to meet current spare parts and surge parts production requirements. With a focus on building awareness of the DoD opportunities, educating vendors on how to bid and making it easy to identify the RFQ's via e-sourcing website (mfrsearch.com), the GDIT Team has developed our Virtual Manufacturing Marketplace (VMM) system.

2.0   VMM

VMM's philosophy and structure is contained in three equally important pillars: the ***mfrsearch*** data base, the ***education*** of the vendors, and the ***outreach*** program to appropriate industry connectors.

2.1   Mfrsearch
Mfrsearch is a critical tool in the VMM system. The site serves as the core foundation for VMM.
In its current state, ***mfrsearch*** has the following capabilities: extracting opportunities from existing government systems such as FedBizOps; a seller database of capabilities; a single point registration; a provision that matches seller capabilities to buyer requirements; automated e-mail notification of opportunities; buyer's control to limit who sees the request for quote (RFQ); geographic sourcing; and, file upload / storage.

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2.1.1 Features and Functions

KEY MFRSEACH.COM FEATURES/FUNCTIONS MATRIX

Features	Functions
Extracts RFQ opportunities directly from FedBizOps	Automated pull of the DOD RFQ's
Single point registration	Site enables suppliers to bid and post RFQ's
Seller database of capabilities	Site has searchable directory of companies
Automated email notification of opportunities	Site automatically matches and emails the RFQ information to the company based on NAICS
Site is FREE to register and use	No subscription fee (Preferred by users – many of whom have had a bad experience on other sites)
User dashboard	Easy to use dashboard to help you manage your activity on the site
Technical Data Package (TDP) Viewer	Site enables users to open a variety of TDPs (Those that are not behind restricted access firewalls.)
White-label capabilities	Site is built to be modular to enable partners to use with their existing website template
News/articles on site	RSS feed helps pull google users to the site

2.2 Education

Educating companies on how to do business with the government/DOD is a key part of ensuring manufacturers stay interested in VMM and use *mfrsearch*. The more success they attribute to this source the more they will use the site. We expect to continue to expand the educational content of VMM and expand it into additional site resources. We envision a site that small manufacturers can share their "solutions" and "work-arounds" to government process challenges. We know this information will both benefit other manufacturers as well as help the DOD identify barriers for suppliers "real-time".

Our current site has support information and by working collaboratively with the Procurement Assistance Technical Centers (PTACs), we expect that we can provide a consistent, knowledgeable support system for manufacturers. There are exciting technical platforms that would allow us to add virtual conferences and virtual tradeshows. The focus of both would be on educating on government processes/regulations and also to encourage collaborations among manufacturers who by working together might be able to collectively bid on RFQ's that they might not be able to tackle alone.

The GDIT Team has discussed the possibility of creating pay-per-view on demand educational videos as a possible revenue stream. The challenge lies in creating content that is perceived to be worth the investment of the viewer. This would need to be studied in more detail as part of a defined, larger

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program. In the interim, the GDIT Team has talked about some "Just the Basics" on-demand videos that could be posted to You-Tube to further awareness efforts.

EDUCATIONAL FOCUS /ACTIVITIES HIGHLIGHTS

- Develop downloadable PowerPoint's and videos for "how to do business with DoD" training (PTAC will be key partner in this content; would include testimonials from "I do it" manufacturers)

- Develop videos of procurement experts who can instruct on the specifics of "how to win" an RFQ (could also specialize by depot or division of the armed forces) (high value content that could be "pay-per-view" worthy)

- Blog for manufacturers to post and share "work-arounds" and "challenges"

- Provide check-lists for preparing an RFQ – to ensure that respondents are covering all the steps; would include tips if struggling with TDP's

- Formal training program with phased modules based on digestible steps in the process (Team has looked at CRM program trainings as a model) An example: Module 1: Key terms and definitions; Module 2: Getting your SAM Code; Module 3: Getting authorization to download secure TDP's; etc.

- Virtual conferences and trade-shows (longer-term – requires extensive technical support)

2.3   Outreach
The outreach program incorporates our communications with a variety of entities, such as, the MEPs, Government buyers, PTACs, various manufacturing organizations, trade shows, and Chambers of Commerce. Our main focus in this area is to provide information about the VMM process so that these entities can realize the benefit to their organization.

3.0   Overview: Market, Customer, Competition
This overview provides an overall perspective on the market, the customer, and our competition.

3.1   Market
There is no national-level, integrated framework to enable rapid, high-density, multi-sector brokering between buyers and US suppliers. Numerous inchoate examples exist in the US as a result of sector-wide efforts (e.g. supplier exchanges), but technical, procedural, and cultural barriers exist which limit the full potential of such portals to open opportunities for more US manufacturing business.

Potential portal-based solutions (ours and competitive sites that may develop in the future) must serve as an "easy-to-use interface" between existing Government systems and the industrial base. They must better categorize industrial base participants based upon their manufacturing capabilities and provide matched opportunities to the most relevant pools of suppliers. Our site, mfrsearch.com, has shown that

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an electronic marketplace ("sourcing portal") will enhance the industrial base's ability to access and bid on relevant business opportunities while addressing a diminishing DoD supply-base, long lead times for part acquisitions and higher than needed lifecycle costs.

3.2   Customer

GDIT's virtual manufacturing marketplace provides a proactive capability of sourcing DoD needs for manufactured products by: provoking non-traditional manufacturers to seek DoD-related business via reducing or eliminating current business and technical barriers; enabling DoD buyers to reach a broader range of potential suppliers through sophisticated sourcing tools; and pushing opportunities to the most relevant pool of suppliers.

In the current environment, only a small percentage of the manufacturers in the United States support DoD manufacturing needs. The estimate shared at the recent Defense Manufacturing Conference (December 2012) was 10%. Spare parts procurements range in lot size and complexity, and at times the lot size may be too small for many suppliers (also called "sellers") to make a profit, TDP's difficult to obtain and legibility issues, or the sellers with the necessary technical capabilities are unaware of the opportunity. These situations and others result in no-bids for critical spare parts. A similar scenario can also impact surge requirements when a large number of parts are needed which overwhelm the primary supplier capacity and additional fabrication sources are sought to fill the requirement, but can't be found in a timely manner. Current approaches often prevent small manufacturers from quickly identifying manufacturing requirements that match their unique competency and providing bids at a reasonable cost. Existing systems simply post the Government's requirements without screening or organizing the requirements based upon the forecasted capabilities needed to meet them. This approach often leaves small business combing through a mass of spare part requirements until they find an opportunity that can be filled by their set of capabilities and expertise. Most give-up and seek business opportunities elsewhere/in commercial markets.

3.3   Competition

There are many companies that are vying for the subscription right to help small manufacturing companies secure business with the federal government. Their claim is pretty straight forward: for a yearly subscription price, they will help small manufacturing companies navigate their way through the government procurement process. The level of help varies among these companies from supplying opportunities from FedBizOps and DIBBS to actually preparing the quote or proposal. Price varies greatly among the subscription companies.

The GDIT Team has a much better solution: using the specific information about a company (NAICS and email), the GDIT Team sorts through the many opportunities that come out each day on FedBizOps; we then match the NAICs of the opportunities to the NAICs of the specific companies. This "targeted" approach provides the small manufacturer specific opportunities that are tailored to the company's business.

Once the company decides that the opportunity is in their market basket, they can secure the engineering drawings or spec sheets from the government procurement specialist. Or, they can contact the VMM

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mfrsearch people and they can provide specific links to "doing business with the government" or they will help them secure the necessary technical information so they can prepare a bid. The GDIT Team is there to help the small manufacturing company to prepare their quote or proposal.

What's the main difference between the GDIT Team and the other subscription–based companies?
We do it for free! No cost to the manufacturers!

The GDIT Team is unique; we have no competition in the way we help the small manufacturer reach their goal or doing business with the federal government.

4.0   *Company/User Stats Information*

Current site stats and goals are as follows:

SITE STATS	Current
Total # of manufacturers in the database with CAM NAICS	116,667
Total # of manufacturers with "CAM Ready" profiles (fit with CAM NAICS Codes and have email address)	1,298
Total # of manufacturers receiving RFQ's from *mfrsearch*	1,298

A break-down by state is as follows:

Company Coverage by State - *mfrsearch.com*

All Companies Total = 339899
CAM NAICS Code Range Companies Total = 116667

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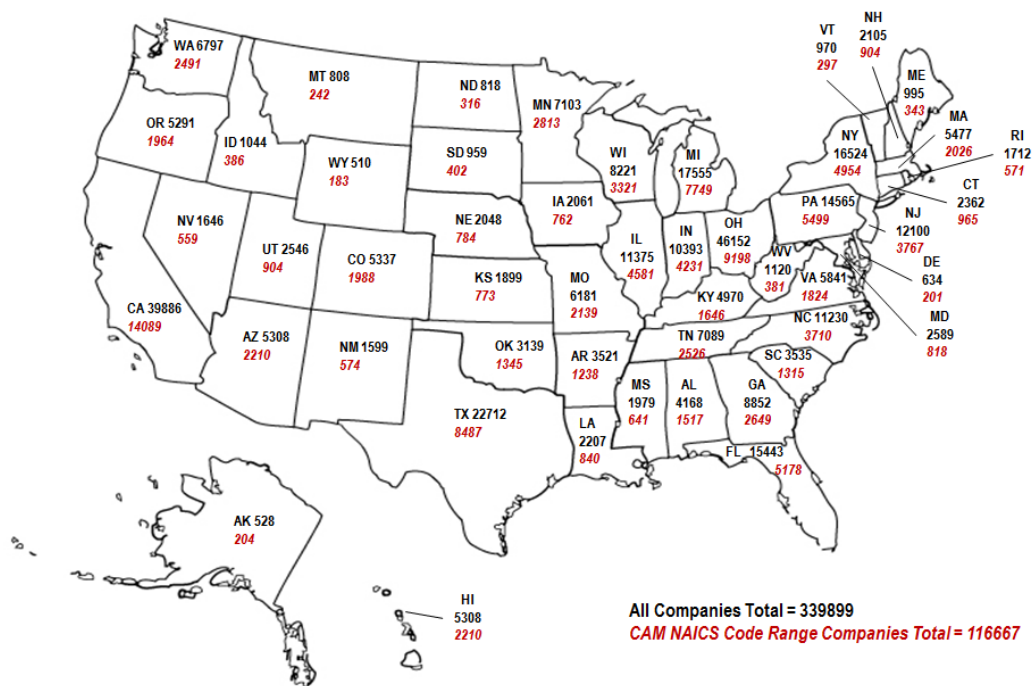
5.0 Intellectual Property Protection

There are three commercial rights that TechSolve will continue to maintain: (1) the live MfrSearch.com site; (2) TechSolve's private, supplier profile database; and (3) the commercial computer software and computer database as governed in their Manufacturers Group Inc. Email Services Agreement. TechSolve will retain license to the "*mfrsearch*" e-sourcing capability based on ProspectTrax® sourcing tool as well as the website during the course of the CAM and in the foreseeable future. *Mfrsearch* was built using the commercial multipurpose marketing automation software platform (ProspectTrax®) and incorporates additional manufacturing data provided from The Manufacturing Group's long standing interaction with industry. The manufacturing databases content has been supplemented by individual companies supplying additional data to more fully participate in the success of the *mfrsearch* opportunity sourcing. GDIT purchased additional data for use in the VMM and that data, while accessible to VMM, is being used as appropriately detailed under the contract that GDIT purchased the data.

6.0 Business models with Finance Plan/Revenue Options

Our long-term vision is for this project to become fiscally self-sustaining. We have previously examined potential business models and have learned that a critical mass of users is required for financial success. The technology platform is designed to be scalable, allowing unlimited expansion as the need arises to increase the activity and supply of buyers and sellers supporting a viable long-term capability.

The GDIT Team has discussed three business/revenue models: 1) sponsors model; 2) fee-based user model; 3) advertising revenue model and various combinations. Through the *mfrsearch* user research, the GDIT Team has learned that the cost to sellers needs to be minimum and needs to provide value. Therefore, while there is a possibility of a "fee per success" program as part of the business model, although is not the Team's most preferred model. GDIT will conduct system usage assessments to identify the most cost effective models. It is most likely that the final business model will be a combination of the basic models presented and evolve as the user base increases.

6.1 Sponsors Model

The sponsor model has opportunities based on the sites attractiveness to several different groups: (1) government outreach agencies/universities, (2) OEM's/Tier 1's looking to expand their supply chain and (3) membership organizations/associations looking to provide additional member benefits.

Government Outreach Agencies such as MEP, PTAC, and select departments in the DoD/R&D Teams in universities have all expressed a need to continue to provide outreach and improved connectivity with the American small manufacturers' community. *Mfrsearch* provides an easy tool to make this connection. While these programs have different measures, each is looking to support the small manufacturing community. MEP and PTAC look for programs like *mfrsearch* to sponsor at a state or national level.

R&D segments of DoD and universities are showing interest in connecting with the manufacturing community to more quickly commercialize their technologies. In discussions with these groups, they are

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eager to find tools to identify companies that may make good partners for commercialization project and programs. We believe that *mfrsearch* could easily fill this role and thus create sponsorship interest in this group.

Additionally, many OEM's/Tier 1's are looking for easy ways to expand their supply chain. Many have internal "supplier registration" sites but there are select larger companies that do not have supplier registration sites that may be willing to sponsor the *mfrsearch* site. The benefit could be a direct link (scrape their RFQ's) to their procurement system and thus *mfrsearch* performs the same auto-matching service to them that currently happens for DoD. This would help them automate their RFQ process and avoid administrative tasks on posting RFQ's to this or various other sites. The selection of this sponsor (one or more companies as determined appropriate) will be based on the population of the site within a particular industry segment. For example, a large number of 33### NAICS code companies in *mfrsearch* would indicate that an OEM or Tier 1 in the xyz industry might be a good prospective sponsor.

Associations and other membership fee based organizations are eager to find new "member benefits" to offer their stakeholders; *mfrsearch* is a "ready-made" solution. The site has the ability to create branded pages where users think that they are located on the associations site and the responses to their search can also be prioritized to show their membership base as "best fit" when a member searches on the site. This will make the site feel very customized and member focused while allowing us to reach out to an infinite number of member organizations.

Due to site capabilities, we could easily use one or more of the sponsor offerings above.

6.2 Fee-based-User Model

The fee-based model has been discussed with current and potential users. Current users understand the site has maintenance costs and are familiar with other models. They have concerns that fees must stay in direct relation to the value they receive from the site. They have experience with similar sites with large "annual fee" costs and are unwilling to participate at high $ rates. Although some indicated they would be open to a "pay if win RFQ" model – in short, willing to pay *mfrsearch* the sales commission on a project that delivered results without a sales person. This is in fact their most preferred model but may be the most difficult to execute without the RFQ awards directly transferring through the site.

A fee-based-user model would rely on a large user base paying a nominal fee. We believe this fee could range $19-49 per company and would, therefore, rely on a large number of subscribers to support the financial model.

The GDIT Team has also discussed a premium package option. This would allow base users to use the site for free and would benefit the site by continuing to expand the site user base. The premium users would pay a fee and might get benefits: higher rankings in search results, bold type, logo placement, etc.

6.3 Advertising Revenue Model

The GDIT Team discussed advertising as a revenue source for the site. On-line ad values show a direct correlation to the user base quantity. We have talked with a firm that sells on-line ads to the manufacturing community and talked in broad terms about the site stats and they believe the site in its current state does have ad revenue potential. The ad revenue model would rely on two options: (1) an existing company that sells on-line ads to the manufacturing community and will likely require they get a significant % (40%+) of the ad dollars generated or (2) an advertising co-op model that would require partnership with trade journals and allow them to extend their ad circulation reach to *mfrsearch*. An

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advertising coop set-up could create long rental agreements with the trade journals that encourage them to "own" the ad space and they could sell the space through their existing ad sales channels. This would eliminate the need for the GDIT Team to develop the sales infrastructure but would require that the Team maintain technical support to ensure that the banner ads are tracked and posted in the correct time slot and correct layout for the ad.

6.4 Combinations

We believe there could be effective combinations across the revenue model options. The sponsorship option with one or a small number of sponsors would be the most ideal position for the site in that it is easiest to manage and administer. However, a combined model of sponsorship and advertising might allow the site to gain traction ("go viral") more quickly. The fee-based user model is the GDIT Team's least favorite model at this time.

REVENUE OPTIONS COMPARISON						
Revenue Source	*Ease of Access*	*Likelihood of Interest*	*Fit with CAM*	*Bring Added Benefit*	*Added Benefit*	*Rating as Long-term Solution*
Sponsor's Model						
Government/ Universities	High	Moderate	High	Moderate	MEP's and PTAC's	Very Good (Need understand $ avail from them)
OEM's/Tier 1's	Moderate	Moderate	High	Low	May want "self-focused" activities vs. DoD	Fair (Need to more clearly define their needs)
Membership/ Associate.	High	High	High	Moderate	Membership data will be accurate and engaged groups	Good (Will require customized programing)
Fee-based User Model	Moderate	Low	Moderate	Low	Will need to define "willing to pay for benefits to add to site"	Fair (Risk of user abandonment)
Advertising Revenue Model	Moderate	Moderate	Moderate	Moderate	Large pool of possible advertisers	Good (Needs sales infrastructure)

7.0 Marketing Plan

An essential element of the Virtual Manufacturing Marketplace will be the expansion of buyers as well as the pool of sellers as endorsers/referral source.

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BUSINESS AND MARKETING ACTIVITIES HIGHLIGHTS

- Publicizing success to a broad audience through focused e-mails, website announcements, technical presentations and press releases, increased visibility on internet search engines,

- Aggressive marketing in manufacturing trade journals

- Aggressive marketing at key manufacturing meetings

- **Work with the Small Business Administration to increase suppliers**

- **Work with the state PTACs to increase suppliers**

- **Work with MEP organizations across the US to increase suppliers**

- **Increase *mfrsearch* visibility by search engines on the internet** and Google ads (selectively based on $ avail.)

- **Develop a self-sustaining/funding options business plan**

7.1   Environmental Scan

The GDIT Tam will conduct environmental scanning market research and sourcing activities of commercial databases, such as, Dun & Bradstreet, HighBeam, Thomas Register and LexisNexis, to identify potential new sellers which will be contacted by e-mail. The GDIT Team will work with willing companies to simplify the registration process as much as feasible. In addition, the GDIT Team will perform a similar search to identify additional buyers.

7.2   Marketing Plan Details

The success of the VMM will be the main driver to retain "suppliers". An active marketing program will bring in additional "suppliers" and buyers on a regular basis.

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MARKETING (AWARENESS) PLAN

OBJECTIVES	GOALS	STRATEGIES	TACTICS
Increase "supplier" awareness of the site and number completed profiles	10,000 impressions per month	Educate manufacturers on ease of site registration	Direct mail campaign (postcard dropping in January 2013)
	200 new complete profiles per month		E-Ads in manufacturing trade journals
			PR/ article on site success
			Site SEO for trade & Google ads
			Email blasts (and purchase email lists to add)
		Be a "go to resource" for how to do business with DOD	Webinars on how to do business with DOD
			Presentations for support to do as webinars/events
			Work in close partnership with PTAC for referrals and training support
			Educate SBA/MEP's on DoD opportunities and encourage support of *mfrsearch*
		Leverage trade/association/manuf focused organizations	Sponsor technical meetings and seminars
		(Universities, Economic Develop Orgs, MEP's)	Create 3-5 advocates
			Leverage blogs
			Article(s) for newsletters
Increase "Government Supporters" awareness of the site (if buyers - encourage them to use site)	20 per month	Educate key advocates on the site	Create TA list
			Personal calls and meeting with advocates
			Create collateral for them to distribute
			Distribute "how to use site" video
Encourage site loyalty	Positive focus group feedback	Develop loyalty program for "favorite users"	Leverage learnings from buyer research to send "best practices" tips
			Add site RSS feed that pulls PR data on manufacturers
			Add a "favorite manufacturers" showcase section
"Manage the Brand"	Define Brand guidelines	Manage the site name	Determine white-label is/is not guidance
			Continue to update LTF

8.0 Summary

The VMM CAM contract incorporates the efforts of three equally important companies: GDIT, TechSolve, and the Manufacturers Group. Each company has specific roles and responsibilities, but we work together as a cohesive team.

The GDIT VMM Team has been promoting our concept of three pillars that are essential to our success: the *mfrsearch* data base, the education of the vendors, and the outreach program to appropriate industry connectors.

This VMM philosophy makes it easy for manufacturers to become aware of current opportunities where they could become potential bidders on these opportunities. Our system matches manufactures' NAICs with the FedBizOps

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NAICs and we send the manufacture an email detailing the opportunity. It's the end of endless hours of research to find the right opportunity—we do all the work for them. And it's free!

There are still a lot of barriers for the manufacturers to overcome and one of our primary objectives is to increase knowledge and awareness of the government procurement process and to help the manufacturers submit bids. We have a few success stories and we are determined to increase our level of success—it's a Win-Win solution for the government and the manufacturers.

7.0 APPENDIX B – CAM Team

1.0   CAM Team (GDIT, TechSolve, & Manufacturers Group)

The GDIT CAM Program Manager was Mr. Craig Lindahl. Mr. Lindahl applied extensive programmatic experience to ensure that this effort remained on track with respect to cost, performance and schedule. Mr. Lindahl brought over 40 years of experience in program management, including managing the AFRL Technical Operations Support (TOPS III) and Structural Technology Evaluation and Analysis Program (STEAP).

Dave Stack provided overall program management to the CAM effort. He brought over 25 years of operational and program management experience with the Federal procurement process.

Gerry Butler brought over twenty five years of experience in government/industry executive positions and expertise in all aspects of aerospace operations, acquisition program management, logistics and supply chain management as well as his expertise as certified Level III, Acquisition Program Management, through the Defense Acquisition University.

Ms. Jean Ryan brought over 25 years of DoD Government contracting experience including negotiations, audits, rate verifications, pricing reviews, contractual interpretations and legal reviews.   Ms. Ryan was authorized to negotiate on behalf of GDIT and contractually bound the company. She also served as the contracts specialist for MATES I, MATES II and MaTeR. Her back-up was Mr. Ron Pelfrey.

Carl A. Herting brought expertise as Senior Manager, Finance for GDIT. For approximately 20 years Mr. Herting has managed program control activities for a business unit that generated revenue reaching $80 million annually. Mr. Herting drew from an MBA from the University of Missouri, Columbia and a Bachelor in Electrical Engineering from Valparaiso University.   He monitored the financial status of CAM, providing monthly reports on the status of each subcontracted activity including earnings, billings, and payments. His back-up was Ms. Jenifer Adams.

The GDIT management team implemented a program execution process that ensured clear visibility into cost, schedule, and technical performance; provided timely billing; ensured coordination occurred between subcontractors and government project manager to avoid miscommunications; and worked with the team to identify appropriate measures of key performance parameters, metrics and go/no-go decision points. GDIT honed its policies and practices as improvement opportunities arose.

The GDIT/ TechSolve / The Manufacturers Group partnership contributed technical resources; experience and capability   related to advanced manufacturing capability matching that could be applied to spare parts sourcing processes to increase the seller base, especially among small businesses.

The GDIT Team collectively provided:

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- An approach to accomplish the technical objectives that leveraged an existing e-sourcing tool that was created to reduce the cost to identify opportunities for small business, and currently processed thousands of RFQs from FedBizOps per month for pairing with potential suppliers. An understanding of some of the barriers. Our team had a functional model based on over two years of research and development incorporating buyer and seller insights from actual small business operations within Ohio. The sourcing tool hosted at mfrsearch.com had been implemented as an Ohio resource to provide services similar to what CAM intended to do nationwide.. Furthermore, experts within GDIT and TechSolve were familiar with DoD procurement and had first-hand knowledge of procurement challenges. .

1.1 Manufacturing
Mr. Paul Hauwiller: Program Manager MATES II. MaTeR. SME for Structures and Propulsion Manufacturing Technologies, Manufacturing SME.

Mr. Hauwiller brought over 30 years of experience in manufacturing and over 20 years of experience with state-of-the-art manufacturing within AFRL/RXM. His initial manufacturing work experience was in a 10-man machine shop and he understood the small business culture. He brought hands-on experience in (1) a variety of metals and composites manufacturing processes and research; (2) catalyzing multi-Service/multi-industry teams in creating an effective working relationship to advance manufacturing technologies and transition them to DoD and commercial systems and (3) formulating solutions for documentation and interactions among diverse parties. He also brought experience as an integral member of the Advanced Manufacturing Propulsion Initiative which has involved an unprecedented number of small businesses. Mr. Hauwiller manufacturing expertise and analytical skills greatly contributed to the design of the VMM CAM processes, inputs and outputs requirements, including report types and data requirements. In addition, Mr. Hauwiller contacts in manufacturing helped to establish relationships with MEP organizations in several states including California, Hawaii, Idaho, New Mexico and Washington. Education: BS in Manufacturing Engineering Technology; MS in Computer Integrated Manufacturing.

2.0 Programming

Local programmers coupled with expertise in artificial intelligence supported by a wealth of software programming capability within the greater GDIT community provided an eminently qualified capability for the rapid identification and implementation of solutions. GDIT drew from its depth of programming expertise to recommend enhancements to the capabilities of the sourcing tool to meet the needs of expanding the DoD industrial base and increasing the cost effectiveness for the procurement of spare parts.

2.1 David Ress: Sr. Principle Scientist, Artificial Intelligence SME: Dr. Ress programming expertise and analytical skills greatly contributed to the design of the VMM CAM processes, inputs and outputs requirements, including data mining activities on various commercial databases such Haystack and American Business List. As a research scientist, Dr. Ress performs algorithm and software development in the areas of data acquisition, data fusion,

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data visualization and data mining. As a Sr. Principle Scientist on the Life Prediction and Durability program he provides direct support for the research efforts performed within AFRL/RXLMN at WPAFB. His responsibilities included database migration and upgrades, data fusion, data delivery, and data visualization activities. As a Principle Investigator on the ELM-PV program, a four-year, three-phase effort to develop a breakthrough in virtual sensing for a future analytical certification for USAF turbine engines. Dr. Ress' responsibilities included sub-contractor management and technical efforts on data mining and data delivery. Education: B.S. Industrial Engineering; M.S. Industrial Engineering; Ph.D. Industrial Engineering.

2.2 **David B. Gley: GDIT, Principal Analyst – Database:** Mr. David Gley brought over 23 years of information technology (IT) experience. He supported the GDIT Team by developing a database containing email address information and manufacturer company profile information to be incorporated into the VMM CAM Database. He drew from other related experiences such as: (1) the design and development of a three-tier, ASP.NET database application containing over 2,000,000 records: (2) providing technical support for existing applications, Oracle databases and websites as well as help desk duties; (3) upporting software development throughout the entire life cycle process; (4) Interacting directly with the customer and over 300 end users throughout the US to ensure full specification of requirements, design approaches, and recommended solutions; (5) providing training to customers and end users as needed; and (5) creating PL/SQL scripts to create various reports for customer analysis. Mr. Gley has a BS, Management Information Services, Wright State University, Dayton, OH, 2000 and an AS, Aircraft Maintenance Technology, Community College of the Air Force, Montgomery, AL, 1990

3.0 **DoD Buyer Side**

3.1 **Gerry Butler: Section VP, Systems Science and Supportability, DoD Buying Process SME:** Mr. Butler brought his experience as a senior executive with extensive aerospace industry experience. Mr. Butler's Air Logistics Center and Logistics expertise greatly contributed to the VMM CAM understanding of buyer's needs. He excels in leading cross-functional teams of government, civilian, and military personnel to negotiate, plan and execute major aeronautical programs; delivers strong and sustainable gains in continuous process improvement, financial performance, profitability and customer focus. He formerly served as a VP general manager with DRS Technologies and Sierra Nevada Corporation, providing systems hardware and software for multi Service needs.   As the System Program Office director for the C-130 System Program Office, he directed 1000+ government military, civilian, and contractor personnel at multiple sites to manage global support operations. Education: BS, Aeronautical & Astronautical Engineering; MAS, Engineering Management.

3.2 **Mr. Craig Lindahl: CAM Manager, Data Mining & System Quality Assurance**: Mr. Lindahl brought over 40 years of experience in business and strategic planning, program management, data mining industrial base analysis, technology transfer, cost benefit analysis, business intelligence, marketing research, trend analysis, environmental and technology scanning, software quality assurance, and systems analysis. He served as the GDIT Project Manager and lead for GDIT data mining of additional manufacturing sources as well as the development of all of the simulated procurement scenarios to validate system quality and assure performance. Education BA, Economics; MBA, Marketing.

3.3   TechSolve Inc.
As a proven leader in innovation, TechSolve collaborates with aerospace and defense executives as well as small, medium and large size manufacturers to drive improvements in design, sourcing, and production. The organization's team includes both engineers and business specialists. TechSolve has implemented sustainable improvements for aerospace and defense customers in design, supply chain, internal operations, program management, and spares and MRO (Maintenance Repair Overhaul). They own the license for mfrsearch.com and were uniquely qualified to sustain and grow this e-sourcing tool into a national capability.

4.0   Manufacturing

4.1   Susan Moehring brought over 30 years of experience working with manufacturing firms to identify needs and address the barriers to the introduction of new technologies and methods, improved processes, and enhanced business and supply chain practices. Susan also brought significant practical experience in process improvement, change leadership and production ramp and surge capability assessment. To support the team, she focused on helping to analyze, synthesize and document the learnings from the Team's efforts toward enhancing the features of the VMM, as well as monitoring and documenting the monthly sourcing tool performance activity, analyzing and synthesizing learnings from the sourcing scenario demonstrations and assisting in the preparation of project deliverables. Susan holds B.S. and M.S. degrees, is a graduate of the University of Tennessee Lean Enterprise Systems Design Institute and is a certified Boeing Accelerated Improvement Team Leader.

5.0   Small Businesses

TechSolve leveraged its strong relationship and understanding of small businesses through its participation in the Manufacturing Extension Partnership and a variety of other activities providing insight into the small business culture. Small businesses often seek low cost methods to identify additional manufacturing opportunities and TechSolve worked with them to better understand the attributes they desire in an e-sourcing tool such as accurate drawing information, minimal cost, the ability to diversify their customer base; opportunities being pushed to them through e-mails as opposed to searching for them, and so forth.

5.1   Kara Valz: Executive Vice President of Marketing and Director for the Center of Small Manufacturers: Kara brought experience building and managing key relationships with manufacturers and stakeholders as well as her experience as a valued contributor to the Governor's Ohio Aerospace and Aviation Council, where she works closely with Ohio aerospace leaders to further the development of Aerospace interests across the state. Within TechSolve, she leveraged her leadership role in meeting the state/federal Edison/MEP contract deliverables and developing supplier development programs for small (<50 employees) manufacturers who seek to improve and expand their business. Karla Valz served as the TechSolve team lead for the CAM project and provided primary support to GDIT for market and business plan development for the VMM concept as well as for expansion of small business participation. She has over 15 years of experience in consumer understanding, strategic positioning, and idea generation and takes a customer-centric approach to projects Education: BA, Business Psychology; MBA, Marketing

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6.0   E-Sourcing: mfrsearch.com
The foundation of the VMM concept was the current *mfrsearch* sourcing tool developed by TechSolve in coordination with the Ohio Manufacturers Association and Dayton Region Manufacturers Association. This tool offered a robust, "free" online database of Ohio manufacturers and suppliers, allowing for detailed, "self-created" company profiles and the posting of RFQs. It already offered many of the desired features such as e-mail notification, capability decision engine for pairing RFQ's with potentially qualified suppliers, a seller profile format, and the ability to search information on buyers and sellers. This provided a ready-to-use foundation for a next generation VMM concept.

6.1   Doreen Stanley, Marketing Manager provided the day-to-day support for the enhancements of the current tool to support the needs of the VMM. She had worked closely with the current mfrsearch.com programming team over the past 10 months providing project management as well as insight on how best to develop the site for use by small to mid-size manufacturers. She brought over 19 years of experience in the areas of business, marketing and fundraising, including13 years at TechSolve where she focuses on the implementation of TechSolve marketing plans for its Manufacturing and Advanced Machining business units. BA, Business Administration in Marketing and Management; Masters of Education.

6.2   ProspectTrax, Division of The Manufacturers Group Inc.
The mfrsearch.com "supplier friendly" prototype site was built using an existing multipurpose marketing automation software platform (ProspectTrax®). The sourcing tool had been in development for two years and was serving Ohio companies to streamline sales and marketing tasks by replacing high-touch, repetitive manual processes with automated solutions. Key managers and programmers of the mfrsearch.com capability also were members of the VMM project team.

6.3   Eric Zaluski, President, ProspectTrax, Division of The Manufacturers Group Inc.
brought experience working with many organizations in the manufacturing sector to implement strategic marketing plans utilizing both traditional and online media outlets. Eric also brought his experiences with moving print publications owned by The Manufacturers Group to an interactive online format that subsequently experienced a 500% readership growth, now more than 250,000 weekly readers. He leveraged this experience to create ProspectTrax® in 2009. Eric guided the focus of ProspectTrax to provide marketing automation and tracking solutions unavailable to companies before. ProspectTrax experience tracking website visitors, scraping databases, criteria matching, executing large-scale e-mail blast distribution and direct email communications, and database construction and analytics were all leveraged for this effort.

6.4   Tristan Smith, Lead Programmer brought professional Information Technology experience gained since 1989 in designing, developing, and managing a wide variety of IT solutions including inventory and tracking systems and a federally mandated document tracking, routing, and permanent storage system for the US Postal Service Postmaster General in Washington, DC. Additionally, he brought experience as project manager for multiple projects for the federal government, some in excess of $35,000,000, and as development manager for the Manufacturing & Technology eJournal, including all advertising and tracking systems. He

leveraged his current responsibility for the development and ongoing enhancements to the ProspectTrax® system in support of this effort, including all technical aspects of database and feature/function programming enhancements as well as enhanced analytics.

8.0 APPENDIX C – Commercial Database Data Mining

1.0   Commercial Database Data Mining

1.1   Haystack

To support the effort to enhance database profiles with CAGE code and e-mail address information, The GDIT Team conducted data mining activities to provide the ability to capture information from a Haystack webpage for over 8500 companies provided in a Microsoft Excel spreadsheet. The information for DUNS number and all email addresses was displayed for each company. The key to finding the information was to search for a company by providing its CAGE code that was present in the same spreadsheet. This had to be done one company at a time. The GDIT Team tried several free web scraping utilities/programs that were just not up to the task for various reasons. The GDIT Team also tried products that were not free but allowed you to test them for a certain amount of time. The first non-free utility the GDIT Team tested was very powerful, intuitive and very easy to use. It was Testing Anywhere produced by Automation Anywhere, Inc. This software had live on-line help as well as a 30-minute to one hour telephone session with an expert to help you solve your problem and not a generic problem to demonstrate the product. They also offered call-back service for more assistance.

After learning the manual method that the GDIT Team needed to know to produce the desired results, the team was able to get the software to open up Haystack, enter our user ID and password, depress the login button, go to the CAGE code search page, enter the first CAGE code into the appropriate field and depress the search button to display its information. Sometimes various things would go wrong taking you to various places. The GDIT Team noted these so that they could fix them later.

The next step was to be able to repeat this over and over again for each of the 8500 CAGE codes. The GDIT Team used a loop to do this. However, once you were logged into Haystack this login process did not need to be done again. So the login process was done prior to the loop as well as opening the Excel file to provide the CAGE codes.

Inside the loop, the software would switch to Excel, copy the CAGE code, return to Haystack, paste the copied value into the appropriate field, depress the search button and then pause for 10 seconds so the GDIT Team could verify it worked. After 10 seconds it would then return back to the search screen, clear the previous CAGE code and then repeat the process again.

Because this was a trial version of the software, the loop function would only allow you loop up to 20 times and no more. The GDIT Team needed to loop over 8500 times until it exhausted the number of CAGE codes provided, so the GDIT Team removed the pause statement.

Once this was accomplished, it was time to attack the problem of capturing the information needed and to store it in the same spreadsheet as the CAGE codes. The GDIT Team tried several things and was getting more errors then results. The GDIT Team talked to their online support and explained the situation. They scheduled for a one on one telephone conference with an automation expert. During the conference call, he was able to connect to the Team computer and

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watch the team run though the automated routine that already had been built and also see the information that needed to be captured. He then told the GDIT Team what to do to capture the data. After the call, the GDIT Team was able to copy the DUNS code, switch to Excel, move the active cell in Excel to the proper column, paste the code into the cell and return to the web page.

Next was to capture the email addresses. This was more challenging because there might be none, one, or many email addresses, and they were never in the same location. The GDIT Team placed another loop to capture the email addresses. Then the Team captured the text from the whole web page into a variable. Then the Team searched through the text looking for the "@" character. When found, it would copy the text within the Hyperlinks tags surrounding the "@" character and place it into a second variable in lower case. It checked to see if it was a duplicate email address or a unique one within the page and if it was unique, it then add it to third variable. This was repeated until no more email addresses were found. Next was to repeat this loop to gather all email addresses. Once this loop was finished, it would switch to Excel, move the active cell to the email column, paste the third variable value into the cell and return to the web page.

Next, this loop needed to be tested repeatedly to make sure it worked. Since this was a trial version and loops could only repeat 20 times, the GDIT Team watched it run. While doing so the Team was able to see several ways to increase its efficiency. The Team made these changes and tested again. One change made a huge increase in speed. This was changing the "returning to the search screen, clearing the CAGE code" was replaced with just entering a URL with the new CAGE code for the next search. This shaved 10-15 seconds off each loop. Since there were over 8500 records, this saved a lot of time.

The Team analyzed the process and came up with a better solution. It placed this whole process within another loop of 20. This change allowed the process to repeat (20*20) for 400 CAGE codes and created a process to do (20*20*20) 8000 records. The software used, Testing Anywhere worked well. During testing the process took three weeks to automate. The testing period granted by Automation Anywhere, Inc. was two weeks. The Team talked to them at the end of the two weeks and they extended the process an additional week. This software costs $2500 for the client product. GDIT plans to use this process and software in any CAM 2 effort.

1.2 LexisNexis Task

A second data mining task was to capture reports from LexisNexis and store them for future reference. The goal was to capture the report, if there was more than one, with the clearest description of the products that the company produces. Some tasks had to be done manually because the team needed to look at the reports to figure out which one to save. The steps that could be were automated. Excel could control Internet Explorer but once a macro stopped, it could not reestablish communication with the open browser. It had to open a new Window. This was meant he team had to have separate VBA scripts to be run manually.

The first macro copies the DUNS number from Excel, opened Internet Explorer to the LexisNexis "Find a Company" search webpage, entered the DUNS number and depressed the search button. The second macro did the same thing, but it first created a hyperlink to the PDF from a manual step and advanced to the next DUNS number. After both macros were run, there was an open browser window. Sometimes an error occurred, but the team ignored it and

continued. Sometimes the search provided "No companies found". The GDIT Team ignored this and continued. When a company was found, the Team manually clicked on the "Other Links" hyperlink. If the resulting windows from this step returned one report hyperlink, the Team clicked on it and saved the report as a PDF. Then the Team clicked on macro 2. Sometimes the resulting window returned more than one report hyperlink. When this happened, the Team clicked on the first one, read through the report, went back a page then clicked on the second. The process was continued and the Team read each report, selected the report with the best description of what the company produces and saved that report as a PDF. Then the Team clicked on macro 2. Sometimes the resulting window returned more than one company name. Then the Team clicked on the first company name and repeated the steps on the previous paragraph, then returned to the second do the previous paragraph again.

Normally, Internet Explorer does not save a webpage as a PDF unless you have a third party component or other software installed to tell it how to do this. The GDIT Team had Adobe Acrobat X Pro installed to do this. But the standard version had this capability also and could be purchased for less than $200.00. GDIT plans to use this process and software in any CAM 2 effort.